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Inconsistency-as-Information: An Examination of The Effects of Incidental Positive and Negative Affect on the Cognitive Dissonance Reduction Process

by

Sean Edward Moore ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Department of Psychology

Edmonton, Alberta
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University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Inconsistency-as-Information: An Examination of The Effects of Incidental Positive and Negative Affect on the Cognitive Dissonance Reduction Process" submitted by Sean Edward Moore in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

08/26/03

Dr. Gerald L. Clore

Dedication

I would like to dedicate this dissertation to those people around me who provided me inexhaustible support throughout this entire process. First, to Petra, my rock: your feedback and supportive words kept me going even when I wanted to call it a day. To my colleagues, Alex and Carrie: your guidance and friendship through the various pitfalls of graduate school was invaluable. To Bob, my original academic mentor: the tutelage you provided here in Edmonton (and continuing on in Ontario) was above and beyond the call of the duty. To my family in Ontario: your patience and approving ears inspired me to finish this degree. Finally, to my mother, who passed away just a few months before I completed my studies: you inspired my educational pursuits and I know you were proud of what I had accomplished. You saw me out to Edmonton when I started this program and I only wish you could have been here when I finished. Thank you to you all.

Abstract

Self-affirmation theory of cognitive dissonance predicts that affirming a valued aspect of the self will eliminate dissonance-related attitude change. Alternatively, it could be argued that affirmations only function to reduce the informativeness of dissonance discomfort through mood repair. The current studies examined the influence of mood inductions on dissonance reduction and explored the role of self-relevant cognitions in this process. Based on predictions derived from affect-as-information theory (e.g., Schwarz & Clore, 1983), it was hypothesized that exposure to sources of incidental positive or negative affect would reduce cognitive dissonance. In Study 1, participants wrote counterattitudinal essays under conditions of high or low choice and were exposed to happy, sad, or neutral mood inductions that were either self-referent or other-referent. Attitudes toward the essay topic were assessed following the mood induction. Contrary to self-affirmation theory, results indicated that the induction of both happy and sad moods reduced dissonance-related attitude change, regardless of whether the mood induction was self-focused or other-focused. Study 2 replicated the dissonance reduction effect obtained with the happy/self-relevant and happy/other-relevant mood inductions and provided more direct evidence that the induction of positive affect was responsible for this outcome. Study 3 extended these findings and indicated that sad mood inductions reduce dissonance through a misattribution

mechanism, as predicted by the affect-as-information account. In addition, the results from Study 3 indicated that the effects could not be explained by a trivialization explanation. Study 4 more directly addressed the motivation underlying dissonance reduction by allowing participants to choose a reduction route following counterattitudinal advocacy. Results indicated that cognitive dissonance tended to arouse a diffuse motivational state, in that participants in the high-choice group expressed a heightened action-tendency as compared to the low-choice participants. These results are consistent with the idea that dissonance discomfort evokes a distal action tendency because it signals to a person that their current state of affairs is problematic and action is required (e.g., Harmon-Jones & Harmon-Jones, 2002; Schwarz, 1990; Sinclair Mark, & Clore, 1994; Soldat & Sinclair, 2001). Implications of these results for an understanding of the motivation underlying dissonance arousal and reduction are discussed.

Acknowledgments

I would like to thank my committee members: Dr. Mike Enzle, Dr. Don Kuiken, Dr. Norman Brown, Dr. Doug Olsen, and Dr. Jerry Clore for their support, comments, and encouragement throughout this process. Thanks also to Tenaha O'Reilly and the rest of the students enrolled in my graduate social psychology course for the discussions that led to this research. This work would not have been possible were it not for the dedication and tireless efforts of the individual studies students who helped me collect these data (there are too many to name, but you know who you are). Finally, I want to thank Dr. Bob Sinclair for his guidance at the outset of this research program and for seeing me through to its completion.

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CHAPTER 1: GENERAL INTRODUCTION

Introduction

What role, if any, does affect play in dissonance reduction processes? In its original theoretical formulation, Festinger (1957) argued that cognitive dissonance was a state of psychological discomfort that resulted from inconsistency between elements of knowledge (i.e., cognitions). Cognitions were considered to be inconsistent if one of the cognitions did not logically follow from the other cognition. Presumably, when a person experiences a state of cognitive dissonance they are motivated to reduce their experience of unpleasant affect by altering one of the inconsistent cognitions, thus restoring cognitive consistency. According to this account, the magnitude of the discomfort and resulting drive to reduce dissonance is determined by the subjective importance of the cognitions involved in the inconsistency.

To demonstrate the motivating effects of cognitive inconsistencies, Festinger and others developed a number of commonly used research paradigms that test the predictions derived from dissonance theory. These paradigms include: the induced compliance paradigm (e.g., Festinger & Carlsmith, 1959; Linder, Cooper, & Jones, 1967) in which an inconsistency between current behavior (e.g., writing of an essay in favour of tuition increases) and prior beliefs (e.g., negative attitudes toward tuition increases) results in belief revision such that attitudes are aligned with one's recent behavior; the free-choice or post-decisional dissonance paradigm (e.g., Brehm, 1956) in which the choice between 1 of 2 equally attractive alternatives results in more positive evaluations of the chosen alternative and less positive evaluations of the rejected alternative; the belief disconfirmation paradigm (e.g., Festinger, Riecken, & Schacter, 1956; Burris, Harmon-Jones, & Tarpley, 1997) in which the occurrence of external, verifiable events that disconfirm one's important beliefs or worldview results in an intensification of one's beliefs; the insufficient justification paradigm (e.g., Aronson & Mills, 1959) in which the experience of negative or stressful events for little or no compensation results in more positive evaluations of the negative event; and the hypocrisy paradigm (e.g., Aronson, Fried, & Stone, 1991; Fried & Aronson, 1995) in which reminders of one's past non-adherence to pro-social behavioral standards (e.g., lack of water-conservation behaviors) results in increased behavioral compliance with these beliefs following the reminder (e.g., shorter showering times). Though dissonance theory bears on innumerable situations in which cognitions are inconsistent with one another, the majority of empirical research, however, has focused more on demonstrating the application of the theory to these experimental situations so that the motivating properties of psychological inconsistency could be better understood (for a more comprehensive review of dissonance paradigms and its theoretical implications for inconsistency theorizing, see Abelson, Aronson, McGuire, Newcomb, Rosenberg, & Tannenbaum 1968; Brehm & Cohen, 1967; Harmon-Jones & Mills, 1999; Wicklund & Brehm, 1976).

Despite the fact that Festinger explicitly argued that cognitive dissonance was an emotionally motivating state, the bulk of dissonance research focused on demonstrating the conditions in which dissonance is aroused (e.g., perception that a behavior was freely chosen; Linder, Cooper, & Jones, 1967; importance of the beliefs; Festinger et al., 1956), how the experience of dissonance affects various outcome measures (i.e., cognitive or behavioral change; Festinger & Carlsmith, 1959), or developing alternative theoretical accounts for dissonance effects (for a review of alternative theoretical formulations, see Harmon-Jones & Mills, 1999). Typically researchers assumed that the cognitive and behavioral change observed in dissonance experiments resulted from emotive processes but rarely directly assessed this presumed moderating influence. In contrast to the majority of past dissonance research, recent work examining the effects of psychological inconsistencies has shown a renewed interest in understanding how the negative affect associated with dissonance is experienced and how such emotions influence dissonance effects (see Harmon-Jones, 2000a, 2000b, 2001 for reviews).

Evidence that Dissonance is an Emotional/Motivational State

Though early dissonance research focused primarily on assessing the impact of an induced cognitive discrepancy on changes in beliefs, attitudes, and behaviors, several researchers did make an attempt to Festinger's claim that dissonance was a felt psychological discomfort. Indirect evidence of the emotional properties of cognitive dissonance was provided in research that focused on the arousal properties of dissonance. Based on the assumption that arousal states typically facilitate performance on simple tasks but interfere with performance on complex tasks, researchers assessed whether dissonance manipulations would affect task performance in a similar manner. For example, Pallak and Pittman (1972) demonstrated that participants who had freely chosen to engage in a boring verbal pronunciation task committed more errors on difficult trials of a subsequent Stroop task, relative to low-choice participants. In addition, evidence of dissonance reduction was found when participants were asked to re-evaluate the boring pronunciation task. In a second study, it was found that high choice participants who were given low external justification for completing the boring task reported more positive evaluations of the boring task than low choice participants and high choice participants who were given high external justification for completing the task. Based on the results of studies such as these, researchers argued that cognitive dissonance resembled a general motivational state, but did not directly assess the emotional properties of experienced cognitive discrepancies.

Further evidence of the emotional properties of dissonance has come from research that has incorporated indices of physiological arousal (e.g., Croyle & Cooper, 1983) or measures of self-reported emotions (e.g., Elliot & Devine, 1994). Specifically, it was demonstrated that participants experiencing cognitive dissonance show elevated electrodermal activity (Croyle & Cooper, 1983; Elkin & Leippe, 1986; Losch & Cacioppo, 1990). In addition, participants who have experienced a cognitive discrepancy report more negative affect than control groups and show more dissonance reducing attitude change than control group participants. For example, Zanna and Cooper (1974) found that participants given high choice to write counter-attitudinal essays supporting a ban of inflammatory speakers on their university campus reported more negative affect immediately following the essay writing task and also reported more attitude change than low choice participants. Interestingly, cognitive dissonance manipulations have been found to increase reports of negative affect but do not influence reports of positive affect. These results are consistent with the idea that negative affect and positive affect can be activated independently (Cacioppo & Gardner, 1999). Taken together, the evidence from these studies has provided initial support for Festinger's claim that cognitive dissonance is an emotionally motivating state and argues against alternative explanations of the behavioral effects of psychological inconsistency, such as Bem's (1967) self-perception theory.

The Role of Affect in Dissonance Reduction Processes

According to Festinger (1957, pp.18-23), once cognitive dissonance is aroused, individuals can select from a variety of dissonance reduction strategies to reduce their psychological discomfort. These strategies include altering one of the dissonant cognitions to restore cognitive consistency (i.e., belief revision; e.g., Festinger & Carlsmith, 1959), reducing the importance of the dissonant cognition (i.e., trivialization; e.g., Simon, Greenberg, & Brehm, 1995), or adding consonant cognitions (i.e., belief intensification; e.g., Festinger et al., 1956). Research has supported the majority of these assumptions and other more specific modes of dissonance reduction have been identified that were not necessarily explicitly described by the original theoretical formulation, such as distraction from the cognitive discrepancy (Zanna & Aziza, 1976), misattribution of dissonance arousal (Zanna & Cooper, 1974), alcohol consumption (Steele, Southwick, & Critchlow, 1981), and ego enhancement (Steele & Liu, 1983). Although the results of these accumulated studies show that dissonance can be reduced in a number of different ways, it has recently been argued that the shared underlying motivation amongst these reduction strategies originates from the specific need to reduce negative emotion (Harmon-Jones, 2000b, 2001; Tesser, 2000). Yet very little research has directly assessed whether changes in experienced negative affect influence the dissonance reduction processes.

Some evidence supporting the critical role of negative affect in dissonance reduction has come from studies employing the misattribution paradigm. For example, Zanna and Cooper (1974) demonstrated that cognitive dissonance could be reduced if the unpleasant affect associated with dissonance is misattributed to an external source (i.e., a pill). In their study, prior to writing a counterattitudinal essay, individuals ingested a "drug" (placebo) that ostensibly caused tension, relaxation, or no side effects. After writing their essays, attitudes were assessed. Their results showed that participants who were able to misattribute their unpleasant affect to an anxiety-arousing pill did not show the typical dissonance induced attitude change, while participants who ingested the pill that presumably caused relaxation reported even greater attitude change.

Zanna and Cooper also found a positive relation between reported negative affect and attitude change in the high choice condition indicating participants were engaging in direct dissonance reduction strategies (i.e., attitude change) in order to reduce their psychological discomfort. Subsequent studies employing the misattribution paradigm have provided further evidence that individuals engage in discrepancy reduction to reduce the unpleasant state that results from cognitive discrepancy, rather than undifferentiated arousal (e.g., Losch & Cacioppo, 1990; Zanna, Higgins, & Taves, 1976).

More recently, researchers have employed direct measures of self-reported emotions to provide support for the argument that the goal of dissonance reduction strategies is to reduce the felt psychological discomfort associated with a cognitive discrepancy (for a review see Devine, Tauer, Barron, Elliot, & Vance, 1999). For example, Elliot & Devine (1994) demonstrated that the negative emotions resulting from counterattitudinal advocacy were reduced to baseline in participants who were provided with the opportunity to directly address the discrepancy (i.e., change their attitudes toward the essay topic). Harmon-Jones (2000c) extended these results and found that the changes in self-reported affect cannot be accounted for by the aversive consequences revision of cognitive dissonance, which predicts that dissonance discomfort only occurs when people are made to feel personally responsible for bringing about foreseeable negative events (e.g., Cooper & Fazio, 1984). Taken together with the results of misattribution studies, the accumulated research suggests that the most immediate goal of discrepancy reduction is that of reducing felt psychological discomfort.

Incidental Sources of Affect and Dissonance Reduction

Given that the implementation of direct dissonance reduction strategies (i.e., attitude change) appears to reduce the discomfort associated with cognitive dissonance, researchers have now begun to show some interest in examining how incidental sources of affect might impact the dissonance reduction process (see Harmon-Jones 2000a, 2000b, 2001). However, there is very little existing research directly addressing this question. Some research suggests that independent increases in positive affect reduce or eliminate dissonance induced attitude change. For example, Kidd & Berkowitz (1976) found that participants who viewed a humorous videotape following a dissonance induction did not show any discrepancy reducing behavior (see also Cooper, Fazio & Rhodewalt, 1978). Building on this idea, it has also been found that unattributed sources of negative emotion increase discrepancy-reducing behaviors. For example, Rhodewalt & Comer (1979) showed that individuals who made smiling facial expressions while writing a counterattitudinal essay did not change their attitudes, while those who made frowning facial expressions changed their attitudes even more than a neutral expression group. The differences in attitudinal reports were also accompanied by expected changes in self-reported emotional experience (i.e., participants who made smiling facial expressions reported greater positive affect than frowning and neutral expression groups). Presumably, exposure to incidental sources of positive affect reduced the psychological discomfort associated with cognitive dissonance, thereby reducing the need for more direct discrepancy reduction strategies. In contrast, exposure to sources of incidental negative affect increased the motivation to reduce cognitive dissonance because the psychological discomfort associated with the discrepancy was increased (Harmon-Jones, 2001).

However, the experience of heightened negative emotions may not always lead to an increased motivation to reduce psychological discomfort. Generally, if individuals are unaware of the influence of a recent, incidental source of negative affect, they may misattribute this affect to a salient psychological inconsistency and hence the psychological discomfort resulting from the dissonance will be perceived as being greater in magnitude than it would have initially been. As a result of this increase in felt discomfort, there should also be an increase in the motivation to reduce the unpleasant state. On the other hand, as Harmon-Jones (2001) has suggested, if participants misattribute their accumulated psychological discomfort to an incidental source of negative affect, then individuals may not attempt to change their attitudes. Thus, one of the purposes of the current set of studies was to further explore the effects of incidental affective states (i.e., happiness, sadness) on dissonance reduction processes.

Affect-as-Information

Given the important role of one's current feelings in motivating cognitive and behavioral change in dissonance theory, more attention has been directed at understanding the role of emotion in the processes of belief formation and change (e.g., Harmon-Jones, 2000b). Recent advances in mood research may provide a more precise explanation for the mechanisms involved in dissonance arousal and reduction processes then was initially offered in Festinger's original conceptualization. In particular, one promising theory is that of affect-as-information (e.g., Schwarz & Clore, 1983, 1988; Sinclair, Mark, & Clore, 1994; Soldat & Sinclair, 2001; Soldat, Sinclair & Mark, 1997), which proposes that people use their moods as a source of information when making certain judgments and decisions. The theory also identifies situations that promote reliance on one's current feelings as a source of information (e.g., salience or identifiability of the sources of one's feelings). In its original formulation, Schwarz & Clore (1983) demonstrated that people contacted via telephone on sunny days reported being more satisfied with their life than people contacted on overcast days, indicating that participants were using their current mood as a source of information when they made their life-satisfaction judgments. In addition, when participants' attention was drawn to weather as a potential source of their current feelings through an attributional manipulation (e.g., asking "So, how's the weather today?"), the differences in life-satisfaction judgments between the sunny day and overcast day groups was eliminated. Presumably, once attention is drawn to the source of one's feelings, current feelings are rendered uninformative to subsequent life satisfaction judgments.

According to an extension of affect-as-information theory (Clore, Schwarz, & Conway, 1994; Schwarz, 1990; Schwarz & Bohner, 1996; Sinclair, Mark, & Clore, 1994; Soldat & Sinclair, 2001; Soldat, Sinclair & Mark, 1997), the informative properties of mood states can influence not only judgmental processes, but also cognitive processing and behavior. Such effects presumably occur because feelings provide information about the individual's current state of well-being, decision making, and general state of functioning (for a related argument regarding the function of emotions see Frijda, 1988). Thus, according to this functionalist or cognitive tuning extension, the experience of negative affect signals to the individual that something may be wrong with or may be threatening to one's current state of affairs and action is required to change something as it currently exists. The experience of positive feelings, on the other hand, signals to the individual that one's decision making is adequate or that there is nothing wrong with one's current state of affairs, so the status quo can be maintained. As a result of this informational influence, the experience of negative affect can result in more detail-oriented, analytical style of processing while the experience of positive affect can lead to less detail-oriented, heuristic processing. So for example, it has been demonstrated that people in happy moods process persuasive arguments less systematically than people in sad moods (e.g., Sinclair, Mark, & Clore, 1994), as well as that people who are in sad moods are more accurate than happy people in their estimations of the magnitude of relationships presented to them in scatterplot diagrams (e.g., Sinclair & Mark, 1995) and in performance appraisals (Sinclair, 1988).

Though studies examining the informative nature of affect have, to date, focused more on the implications of one's current mood state for judgments, decisions, and cognitive processing, the theory may also have implications for cognitive dissonance theorizing. Previous researchers (e.g., Kelman & Baron,

1968) have noted that the experience of cognitive dissonance, like other negative emotions, may signal or inform an individual about the adequacy of their coping abilities. Consistent with this general argument regarding the informative nature of cognitive dissonance, according to an affect-as-information reinterpretation of dissonance phenomena, individuals experience discomfort from a cognitive inconsistency because it signals to them that something is problematic with their current state of affairs (e.g., "My current behavior is in conflict with some of my important beliefs, goals, or values") and that something needs to be done to resolve this discrepancy (e.g., "Perhaps my beliefs are not accurate and require revision"). Furthermore, consistent with the original dissonance theory, such a model predicts that the magnitude of inconsistency-related affect should be positively related to the self-ascribed importance of the cognitions involved in the discrepancy, as a conflict in more strongly held beliefs signals a more problematic situation in terms of goal-relevant pursuits.

In terms of dissonance reduction and the belief changes that commonly result from the experience of cognitive dissonance, the affect-as-information model outlined here suggests that the discomfort associated with a cognitive inconsistency may signal to a person that they may need to scrutinize their prior beliefs. If a person were to scrutinize their beliefs as well as their recent, salient behaviors, this re-evaluation process may result in attitude or belief change. Such a course of action reduces both the inconsistency itself and the unpleasant affect associated with the inconsistency. Note, however, that actions aimed at directly resolving the inconsistency may not be the only way in which dissonance can be reduced. The affect-as-information model points to other possible actions to address (and reduce) the discomfort signaled by a psychological inconsistency. An individual experiencing cognitive dissonance can either: a) take action to directly reduce the negative affect (i.e., engage in activity that makes them feel better or b) they can reinterpret the meaning of the negative emotion in light of other recent emotional experiences (i.e., "I'm feeling bad right now but that's because I recently received a poor grade on an exam"). In terms of dissonance reduction this model suggests that if a positive mood is evoked following a dissonant act, attitudes should not be altered because the experience of a positive mood implicitly signals to an individual that nothing is wrong with their world and that current beliefs can be maintained. On the other hand, if a person were to experience incidental negative affect following a dissonant act or be reminded of an alternative explanation for their current feelings, they may also not change their beliefs as the inconsistency-related affect can be re-interpreted as not having anything to do with the state of their current beliefs and goal pursuits. Such a prediction is consistent with previous findings indicating that that people experiencing a sad mood are more likely to search for a cause or attribution for the source of their mood than happy or neutral mood participants. (e.g., Schwarz & Clore, 1983). However, if one's attention were not drawn to the sources of one's current mood and negative affect were increased, this may create an even stronger action tendency or motivation to resolve the inconsistency (for a related argument concerning negative affect see Harmon-Jones, 2001). Interestingly, no one to date has tested these predictions.

Self-Affirmation Theory and Dissonance Reduction

Although extant research generally supports the claim that strategies aimed at reducing the unpleasant affect associated with cognitive dissonance effectively reduce the cognitive and behavioral changes that typically result from the production of a psychological inconsistency, some researchers have argued that reduction of negative affect is not necessarily the primary motivation underlying dissonance reduction. For example, Steele (1988) has argued that dissonance reduction strategies that restore the positive integrity of the self-concept will eliminate any cognitive or behavioral changes that result from dissonance inductions. According to this self-affirmation view of dissonance, if people experience a cognitive discrepancy and engage in strategies aimed at affirming the positive integrity of the self (i.e., affirming a positively held value), any dissonance related cognitive and behavioral changes should be eliminated.

To support this argument, Steele & Liu (1983) demonstrated that individuals induced to write a counterattitudinal essay did not show the typical post-essay attitude change when they were given the opportunity to affirm a highly valued aspect of the self-concept following the essay-writing task. Steele, Spencer, & Lynch (1993) extended this line of research by demonstrating that affirmation manipulations presented prior to making a difficult choice would effectively eliminate or protect against post-decision attitude shifts. It was further argued by these authors that the self-affirmation manipulation used in these studies did not have any mood-enhancing qualities. To substantiate this claim, Steele & Liu administered the same self-affirmation manipulation to a group of participants who had not experienced a cognitive discrepancy. Their results showed that there were no mood-enhancing effects of the affirmation manipulation, but that self-concepts were enhanced. In addition, Steele et al. (1993) showed that mood manipulations presented prior to a difficult decision did not have the same dissonance reducing effects, as did an affirmation manipulation.

Yet there are a number of problems with the claim that self-affirmations have no impact on current mood. First, it has not been specifically demonstrated that self-affirmation manipulations do not reduce the unpleasant affect associated with cognitive dissonance. Steele & Liu (1983) only attempted to demonstrate the mood-enhancing qualities of their affirmation manipulation. As the individuals they tested had not experienced any sort of psychological discomfort resulting from a cognitive discrepancy, their results only demonstrate that the affirmation manipulation did not affect increases in positive mood. Recent research, however, indicates that the more specific motivation underlying dissonance reduction is that of reducing negative affect (e.g., Elliot & Devine, 1994). Based on the design of the Steele & Liu study it was difficult to ascertain whether the self-affirmation manipulation was in fact reducing unpleasant affect. Second, in the only study designed to directly compare the effects of mood manipulations and self-affirmations on dissonance reduction (i.e., Steele et al., 1993, Study 3), mood-manipulation checks were included prior to the dissonance induction. Use of such measures may have inadvertently called participants' attention to their current emotional state. In effect, this makes the incidental mood state uninformative to the dissonance task (i.e., any changes in mood resulting from the mood manipulation can be discounted as an explanation for the psychological discomfort resulting from the dissonance induction (see Tesser, 2000, for a similar argument). Finally, recent research has shown that affirmations that are directly related to the domain of cognitive discrepancy will not effectively reduce cognitive dissonance (e.g., Blanton, Cooper, Skurnik, & Aronson, 1997) and that participants experiencing cognitive dissonance prefer to avoid positive feedback that directly relates to the cognitive discrepancy (e.g., Aronson, Blanton, & Cooper, 1995). Such avoidance would seem to suggest that participants prefer affirming strategies that will not cause further psychological discomfort. Taken together, these ambiguities point to the need for further research efforts directed at disentangling these competing explanations of dissonance reduction processes.

Purpose of the Present Research

Based upon this review, there were multiple purposes of the present set of studies. First, I wanted to examine the influence of incidental sources of affect (i.e., happy and sad mood inductions) on dissonance reduction processes. Second, I wanted to compare the affect-as-information and self-affirmation views of dissonance reduction. This was achieved by comparing the influence of mood induction procedures that involved either self-focus versus other-focus. Third, I wanted to provide specific evidence that sources of incidental affect reduce the psychological discomfort associated with a cognitive discrepancy. Finally, I wanted to gain a better understanding of the motivation underlying dissonance reduction in the induced compliance paradigm by allowing participants who are experiencing a psychological inconsistency to indicate their preferred mode of inconsistency resolution.

CHAPTER 2: STUDY 1

Pilot Study

The first step in this research program was to develop equivalent forms of self-referent and other-referent mood induction procedures. The mood induction used in the current study was a variant of the "Life Events Inventory" used in prior research examining the effects of incidental mood states on persuasion and cognitive processes (see Bless, Bohner, Schwarz, & Strack 1990; Strack, Schwarz, & Gschneidinger, 1985). We chose this procedure because of its covert nature (i.e., participants are not informed that the procedure is intended to change their mood) and its adaptability to our current research needs. For this procedure, under the auspices of developing a student life experiences inventory, participants are asked to describe events that are intended to evoke a particular mood (i.e., happy or sad events). In order to compare the self-affirmation and affect-as-information positions of dissonance reduction, the task was modified such that participants were either instructed to write about events in their own life (self-relevant version) or write about events that had occurred in a fictional character's life (other-relevant version). The verbal script for the pilot study is presented in Appendix A. The pilot study was conducted to examine the effectiveness of the self-referent and other-referent forms of the Life Experiences mood induction and ensure that the two forms of the mood induction brought about similar changes in self-reported mood.

Upon arrival at the experimental session, it was explained to participants that the researcher was attempting to develop a Life Experiences Inventory to be used in future research. Once informed consent was obtained (see Appendix B), the experiment informed the participant that he/she was interested in a variety of life experiences and that participants were to be randomly assigned to describing 1 of 200 different types of life experiences. After receiving this information, participants were asked to draw one slip of paper from a box containing hundreds of slips of paper and read the content of the slip aloud. The drawing was rigged so that that one of six possible life experiences was chosen. This procedure was used to ensure that participants were unaware that the Life Experiences procedure was actually a mood induction procedure and avoid contamination from demand characteristics. Participants were randomly assigned to one of 6 possible mood induction conditions (self-relevant happy, self-relevant neutral, self-relevant sad, other-relevant happy, other-relevant neutral, other-relevant sad) in blocks of six within gender (see Appendix C for the written instructions of each Life Experiences task).

After the participant had indicated the Life Experience condition to which they had been assigned, the experimenter obtained the "correct" Life Experiences task from a set of folders in a desk drawer. Once they received their packet, participants were asked to read the instructions on and engage in the task for a period of 10 minutes, as timed by the experimenter. Depending on experimental conditions, participants were asked to think about events that had happened to themselves (self-relevant) or events that had happened to a fictional characters that they had encountered in any movies, books, or television shows they had recently viewed (other-relevant), and then write down events that were either happy, sad, or neutral. Participants were provided with 3 sheets of blank paper to complete the Life Experiences task. Immediately after completing the task, participants indicated their current mood on 2 items embedded within a measure assessing their overall impressions of the life experiences task (see Appendix D). After completion of these measures, hypothesis suspicion was assessed and participants were thanked and debriefed (See Appendix E for Pilot Study verbal debriefing) and those exposed to negative mood inductions were exposed to a mood restoration procedure.

A 3(mood) X 2(self-relevance) analysis of variance (ANOVA) on the measure of post-induction mood revealed a main effect for mood, $F(2, 104) =$

3.09, $p < .05$. All other effects did not approach significance. A planned contrast carried out on this effect confirmed that participants who were asked to recall happy events ($M = 5.29$) reported more pleasant moods than participants who were asked to recall sad events ($M = 4.43$), while the participants who were not instructed on the valence of event to recall fell in between the happy and sad groups, ($\underline{M} = 5.11$), $F(1, 104) = 6.28$, $p < .05$[1]. These findings suggest that the self-relevant and other-relevant Life Experiences procedures induce similar types of moods.

Study 1

The purposes of Study 1 were to examine the influence of incidental affect on dissonance reduction processes and to compare the affect-as-information and self-affirmation views of discrepancy reduction. Participants were given high or low choice to write counterattitudinal essays supporting substantial increases in tuition fees. Following this dissonance induction, participants were exposed to either a happy, sad, or neutral mood induction procedure. To provide a test of the affect-as-information and self-affirmation positions, these mood inductions either involved cognitions about the self (i.e., focusing on events that made them feel happy or sad) or cognitions about a fictional character (i.e., focusing on events that made another person feel happy or sad). The self-affirmation position predicts that only the mood inductions that affirm a positive aspect of the self-concept (i.e., the happy, self-relevant mood induction) should effectively reduce cognitive dissonance. Alternatively, the affect-as-information view of dissonance motivation predicts that any source of incidental affect that reduces the informativeness of the psychological discomfort associated with cognitive discrepancy (i.e., both self-relevant and other-relevant happy mood inductions) will eliminate any dissonance reducing attitude change. In addition, we sought to further explore the idea that independent increases in negative affect would increase direct dissonance reduction processes (i.e., attitude change). However, in the present study it was unclear if the sad mood inductions would increase cognitive dissonance, as participants would have a salient negative label available ("sad") for misattributing any experienced negative affect. Thus we predicted that both the happy and sad mood inductions would exhibit less attitude change following counterattitudinal advocacy than the neutral mood group. Presumably, high-choice participants in the happy mood condition will experience less psychological discomfort and will be less motivated to change their attitudes, while high-choice participants in the sad mood condition will not change their attitudes because they are likely to misattribute any felt discomfort to the negative mood induction. Furthermore, to assess a possible distraction explanation for these effects, which predicts that any procedure that distracts from a salient cognitive inconsistency will reduce dissonance induced attitude change, a neutral mood induction procedure was included. Contrary to a distraction prediction, it was predicted that high-choice participants who completed a neutral mood induction following the dissonance manipulation would exhibit the typical pattern of dissonance induced attitude change.

Method

Participants and Selection

Participants for Study 1 were University of Alberta undergraduate students who indicated that they strongly disagreed with the statement, "Tuition fees at the University of Alberta should be increased substantially." These data were collected as part of an "Attitude Questionnaire" that was distributed in introductory psychology classes at the beginning of term (See Appendix F). This attitude pre-testing is commonly used in cognitive dissonance experiments and is used to assess the changes in attitudinal reports brought about by dissonance manipulations (see Elliot & Devine, 1994). On the pre-testing questionnaire, participants indicated their attitudes toward a variety of student issues on a series of 15-point scales (1 = strongly disagree, 15 = strongly agree), including the critical item dealing with tuition increases. Of the students who indicated they were (1) strongly opposed to tuition increases, 76 were successfully recruited to participate in the current study[2]. All were volunteers who participated in order to fulfill a course requirement.

Procedure

Participants were run in individual research sessions. The experimenter began each session by stating that the purpose of the study was to examine how people's attitudes and life experiences affected their perception of other people's behavior (See Appendix G for the complete Study 1 script). Both the consent form (see Appendix H) and the experimenter verbally stated to participants that experiment consisted of 3 parts: an attitude activation task (dissonance manipulation) that purportedly was intended to activate their attitudes prior to the social perception task, a life experiences inventory task (mood induction) that was being developed for future research but was also being used to examine how particular life experiences might affect social perception, and the social perception task itself, which, in fact, did not take place.

Dissonance manipulation. Participants were first asked to complete the attitude activation task, which in fact was a variant of the typical induced compliance procedure for inducing cognitive dissonance (e.g., Linder, Cooper, & Jones, 1967). The instructions for the task were similar to those used by Steele &

Liu (1983). The experimenter explained that the purpose of the task was to collect information and opinions about the positive aspects of a potential tuition increase at the University of Alberta. It was explained that the data were being collected for an upcoming student debate on the issue of tuition increases and that in order to gain a clearer understanding of the issues involved in the debate, a tuition increase committee had requested that students list arguments favoring only one side of the issue. It was further explained that since the committee had already received numerous arguments opposing a tuition increase, the committee was now seeking arguments favoring the increase. Participants were then told to take the next 10 minutes to list the strongest, most forceful arguments supporting a substantial tuition increase at the University of Alberta. Participants were given an envelope that contained all the materials for completing the task (see Appendix I for counterattitudinal essay instructions and choice manipulation). Participants were randomly assigned to either a high or low choice condition in blocks of 2 within gender. To manipulate perceptions of choice, the experimenter emphasized to high choice participants the voluntary nature of the task, but indicated that the tuition increase committee was seeking arguments in favor of tuition increases. In addition, to emphasize the voluntary nature of the task, the first page in their envelope was an essay release form that asked participants to acknowledge the nature of the task and asked participants to indicate that they had voluntarily chosen to complete the task by responding to a Yes/No question. Low choice participants were simply informed that they had been assigned to write arguments in favor of tuition increases and their packets did not contain an essay release form. All participants were instructed to return their arguments to the envelope once the task was complete so that they could be forwarded directly to the tuition increase committee. Participants then spent the next 10 minutes writing.

Mood induction. After completing the attitude activation task, participants were informed that they would be completing a Life Experiences Inventory that was being designed for future research. The instructions and procedure for the task were similar to those used in the Pilot Study. Participants were asked to recall and write about specific types of life experiences for a 10-minute interval. Participants were randomly assigned to one of 6 possible mood induction conditions (self-relevant happy, self-relevant neutral, self-relevant sad, other-relevant happy, other-relevant neutral, other-relevant sad) in blocks of six within choice and gender conditions.

Dependent measures. Following completion of the Life Experiences task participants were asked to complete several measures that were presumably designed to assess issues related to the tasks they had just completed. Participants were handed a 3-page packet that contained a number of different measures. Participants first completed a page assessing their attitudes toward tuition increases. The instructions for the attitude measure stated that, "in order to evaluate your essay, the committee that is considering the tuition increases would like to know what your opinion toward the issue is." Participants were asked to indicate their attitude toward tuition increases on four 15- point scales (see Appendix J). On the first scale participants were asked to indicate the extent to which they (1) "strongly disagree" or (15) "strongly agree" with the statement "Tuition fees at the University of Alberta should be increased substantially." On the second scale participants were asked to indicate the extent to which increasing tuition fees would be (1) "very harmful" or (15) "very beneficial." On the third scale, participants were asked to indicate the extent to which they thought the idea of increasing tuition fees is (1) "very bad" or (15) "very good." On the fourth scale, participants were asked to indicate the extent to which they (1) "strongly disagree" or (15) "strongly agree" with the statement, "I support the proposed tuition increases at the University of Alberta."

On the second page, participants were asked to provide information for the validation of the Life Experiences task. The page contained seven 5-point

Likert scales. As a check on the mood manipulation, on one of these seven scales, participants were asked to indicate their current mood by indicating the extent to which they agreed with the statement, "Right now, I feel very good." The remaining six scales were filler items.

Finally, on a third page, participants were asked to indicate their perceptions of choice in completing the attitude activation task (see Appendix K) by indicating the extent to which they (1) "strongly disagree" or (9) "strongly agree" with the statement, "I freely chose to write the essay supporting tuition increases." Following completion of the packet, all participants completed a mood restoration procedure, and were asked to respond to a question that assessed their suspicions about the hypothesis of the study. Participants were then thanked and debriefed (see Appendix L for Study 1 verbal debriefing and Appendix M for Studies 1-4 written debriefing).

Results

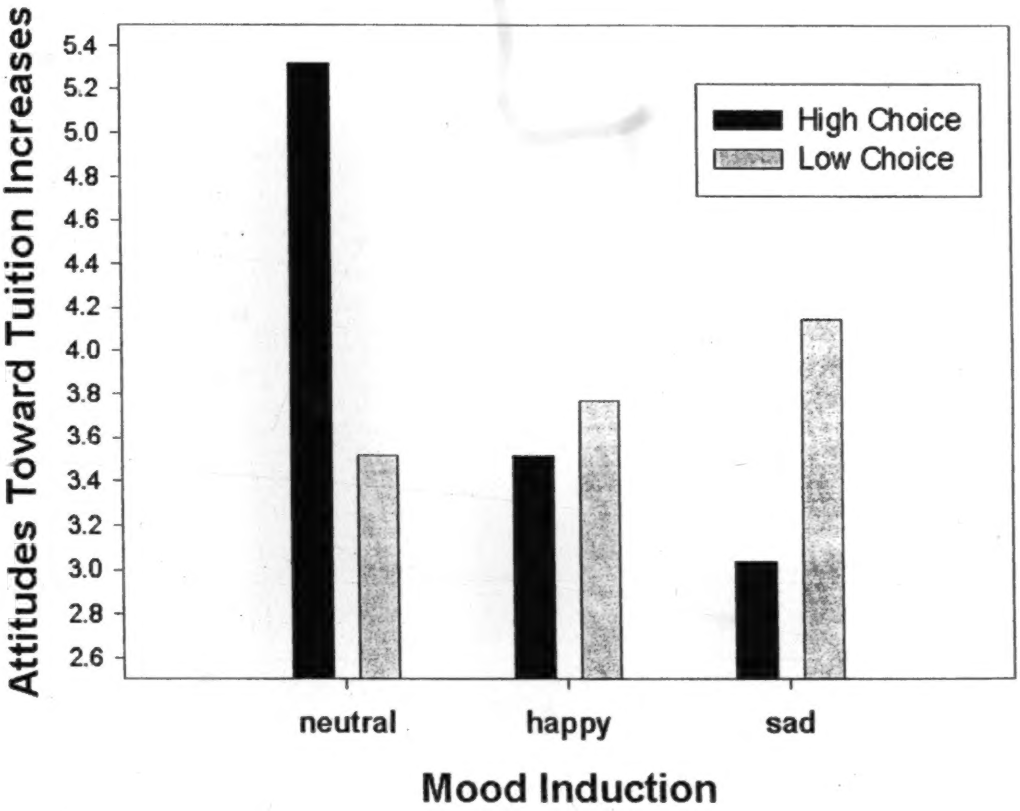
Manipulation Check

Participants' responses to the choice item were scored such that high scores indicated greater perceptions of choice in completing the attitude activation task. The manipulation of perceived choice was effective as indicated by the result that high-choice participants ($M = 6.56$) reported having more choice in completing the tuition essay than low-choice participants ($M = 4.92$), $F(1, 64) = 5.95$, $p < .05$. No other effects were significant.

Attitudes

Participants' responses to the 4 attitude items were scored such that high scores (15) indicated favorable attitudes toward tuition increases. An internal consistency analysis indicated that the four items formed a reliable scale (Cronbach's alpha = .87). The mean of these items formed a measure of attitudes toward the proposed tuition increases and served as the dependent variable in a 2(choice) X 3(mood) X 2(self-relevance) ANOVA. As expected, the only significant effect that emerged was a choice X mood interaction, $F(2, 64) = 3.53$, $p < .05$. This interaction is presented in Figure 1. Consistent with the affect-as-information model of dissonance reduction, the pattern of effects appears to suggest that exposure to both the happy and sad mood inductions following counterattitudinal advocacy effectively reduced cognitive dissonance. A planned contrast confirmed that high-choice participants exposed to a neutral mood induction ($M = 5.32$) changed their attitudes more than did both the high-choice participants exposed to the happy mood induction ($M = 3.52$) and the high-choice participants exposed to the sad mood induction ($M = 3.04$), as well as all of the low-choice conditions (low-choice/ happy mood $M = 3.77$, low-

FIGURE 1. Attitudes Toward Tuition Increases as a Function of Choice and Mood Induction Condition: Study 1.



choice/neutral mood $M = 3.52$, low-choice/sad mood $M = 4.15$), $F(1, 64) = 8.25$, $p < .01$[3].

Mood

Participants' responses to the mood measure item were scored such that high scores (5) indicated more positive moods. This item served as a dependent variable in a 2(choice) X 3(mood) X 2(self-relevance) ANOVA. As the item was only intended to measure positive affect it was unclear whether there would be any observable differences between the groups in self-reported positive mood after being given an opportunity to directly address their cognitive discrepancy through attitude change. Analyses revealed a marginally significant mood X self-relevance interaction, $F(2, 64) = 2.84$, $p = .07$. Post hoc analyses carried out on this interaction suggested that the neutral mood/other-relevant condition reported more positive moods ($M = 6.07$) than the neutral mood/self-relevant ($M = 5.00$) and sad mood/self-relevant conditions ($M = 5.00$), all p's $< .05$. All other comparisons were not statistically significant.

Discussion

The results of Study 1 suggest that the induction of happy and sad moods that are incidental to a dissonance induction reduce attitude change that is typically associated with counterattitudinal behavior. These results contradict a self-affirmation explanation of dissonance reduction processes, which predicts that only those manipulations that restore integrity to the self-concept effectively reduce cognitive dissonance. Self-affirmation theory predicts that only positive mood inductions that affirm the integrity of the self-concept will reduce dissonance (Steele, 1988). Hence, only the positive/self-relevant mood induction should have resulted in a reduction of dissonance-induced attitude change in Study 1. In contrast, the results of this study provide further support for the argument that the motivation underlying dissonance reduction is one of reducing the unpleasant affect associated with the cognitive discrepancy. Regardless of whether the mood induction was self-relevant or other-relevant, the experience of positive affect following a dissonance induction effectively reduced any dissonance induced attitude change. This pattern of results also cannot be explained by a straightforward distraction explanation (Zanna & Aziza, 1976), given that such a position would predict that any manipulation that distracts from the cognitive discrepancy should reduce cognitive dissonance. Contrary to this prediction, in the present study, evidence of attitude change resulting from counterattitudinal advocacy was found in the high-choice/neutral condition but not in the high-choice/happy or high-choice/sad conditions.

In addition, the present research helps to clarify the role of incidental negative moods in the dissonance reduction process. Harmon-Jones (2001) speculated that increases in incidental negative affect might also increase the motivation to reduce dissonance. However, in the current study the results indicated that the induction of sad moods had the opposite effect; sad mood inductions, like happy mood inductions, eliminated the attitude change associated with a cognitive discrepancy. The most likely explanation for this pattern of effects is that participants in the sad mood induction conditions misattributed their negative affect to the mood induction procedure and hence reduced their motivation to directly address the cognitive discrepancy through attitude change (e.g., Zanna & Cooper, 1974). In other words, since the sad mood participants were aware that they had just completed a procedure focusing on "sad" life experiences, they might have attributed any of the discomfort they might have been experiencing from the dissonance induction to the most immediate, plausible explanation (i.e., the mood induction task). This interpretation is consistent with immediacy principle suggested by affect-as-information theory (e.g., Clore & Gasper, 1999) as well as with Tesser's (2000) argument that participants must be unaware of the sources of their affect in order for it to influence dissonance reduction processes. Future research might examine this possibility further by examining the impact of labeled and unlabelled negative mood states on dissonance reduction processes.

Although the results of the Study 1 help to clarify the role of affect in dissonance reduction processes, the limitations of the current study deserve some mention. First, it was difficult to determine whether the participants who were experiencing a cognitive discrepancy were attempting to reduce the psychological discomfort associated with cognitive dissonance. Although a single item assessing positive affect was used in the current study, it was unclear whether participants had in fact reduced any discomfort that they were experiencing since no measures of affective state were obtained immediately following the dissonance manipulation. Past research incorporating more exhaustive measures of dissonance affect have shown that dissonance inductions typically result in increased reports of discomfort (e.g., uncomfortable, uneasy, bothered), while self-reported pleasant affect is unaffected by such manipulations (see Devine et al., 1999 for a review). Such results tend to support the idea that negative and positive affect can be activated independently (e.g., Cacioppo & Gardner, 1999).

CHAPTER 3: STUDY 2

Introduction

To provide further support for the conclusions of the initial study, a second study was conducted to replicate the effects obtained in Study 1 with the happy and neutral mood groups using previously validated measures of dissonance-related affect and to determine whether discomfort is reduced to baseline levels. In addition to these mood measures, questions assessing self-esteem were included to examine the impact of counterattitudinal behavior on self-esteem. These items were included to determine if the experience of cognitive dissonance influences temporary evaluations of the self-concept (e.g., Aronson, 1969) rather than one's level of discomfort as well as to determine if chronic levels of self-esteem can act as a buffer or resource to counteract the effects of counterattitudinal advocacy (e.g., Steele et al., 1993). Furthermore, several items were included that were intended to more directly assess whether value affirmation reduces dissonance-induced attitude change or whether the experience of positive affect following a dissonance induction is responsible for the reduction in attitude change.

Procedures and instructions for Study 2 were similar to those used in Study 1. Participants were given high or low choice to write counterattitudinal essays supporting substantial increases in tuition fees. To assess the effectiveness of the essay task at inducing cognitive dissonance, 2 groups of participants completed affect and attitude measures immediately following the essay- writing task. Following the dissonance induction, other participants were exposed to either happy/self-relevant, happy/other-relevant, or neutral mood induction procedures. After completing the mood induction procedures, participants responded to a self-report mood measures (adapted from Elliot & Devine, 1994), followed by questions designed to assess their attitudes toward the issue of tuition increases and their overall level of self-esteem. On a final page, participants responded to items intended to assess the extent to which they had engaged in value-affirmation and their perceptions of discomfort reduction. All participants in Study 2 completed the self-report mood measure prior to completing the attitude scales. Elliot & Devine (1994) demonstrated that such an ordering of questionnaires detects both dissonance-related affect and dissonance-reducing attitude change. As well, the self-esteem scale was placed after the affect and mood measures to ensure that participants did not engage in spontaneous self-affirmation as a result of reflecting on their self-concept prior to completing the attitude measure.

It was predicted that participants in the high-choice, immediate affect/attitude condition would report greater levels of psychological discomfort and greater attitude change than the low-choice, immediate affect/attitude condition as a result of the cognitive dissonance manipulation. In addition, in accordance with the affect-as-information view of dissonance reduction, it was predicted that high-choice/delayed participants exposed to both the happy/self-relevant and happy/other-relevant mood inductions would report less attitude change than would high-choice participants exposed to the neutral mood induction. The levels of attitude change in the happy mood induction conditions should be equivalent to those of the control group participants (i.e., low-choice/immediate group), demonstrating that participants had resolved their dissonant state by reducing their psychological discomfort. Predictions regarding the affect measures were less straightforward, although it was expected that participants in the high-choice/immediate condition would report higher levels of discomfort then low-choice/immediate participants and that discomfort should be reduced to a greater degree by the positive than the neutral mood induction procedures.

Method

Participants

Participants were 97 undergraduate students who had indicated in a previous mass-testing session that they were (1) strongly opposed to tuition increases at the university of Alberta on a 15-point Likert scale[4]. All were volunteers who participated in order to fulfill a course requirement.

Procedure

Upon arrival to the experimental session, participants were informed that they were taking part in a study examining students' attitudes, life experiences, and social perceptions (for Studies 2-3 experimental script see Appendix N). Participants were randomly assigned to one of 5 experimental conditions, which were created by varying the time at which affect and attitudes were assessed and the types of mood induction to which participants were exposed. In the immediate affect/attitude assessment conditions, participants wrote counterattitudinal essays under conditions of high or low choice and then completed the dissonance affect measure (see Appendix O), the attitude change measure, and the self-esteem measures (see Appendix P). Following completion of these measures, both high and low-choice groups completed neutral mood induction procedures, in which they were asked to list details of their daily activities over the past few days. Participants were also asked to complete a "Life Experiences" follow-up questionnaire on which they were asked to indicate the extent to which they thought the things they listed on the on the daily experience activity were self-relevant or important as measures of the value affirmation process (see Appendix Q). Two other items on this questionnaire assessed the extent to which participants believed the life experiences they had described induced positive affect. In the delayed affect/attitude assessment conditions, participants wrote counterattitudinal essays under conditions of high choice, and were then exposed to 1 of 3 mood induction procedures (i.e., happy self-relevant, happy-other relevant, or neutral). After completing the mood induction procedures, participants completed identical affect, attitude, self-esteem, value importance, and life-experience follow-up measures as described above.

The procedure and materials used in Study 2 were identical to those of Study 1 except for the addition of questionnaires designed to assess dissonance affect, self-esteem, and value importance. The dissonance affect measure was adapted from Elliot & Devine (1994). The measure consisted of list of 15 emotion-relevant terms (e.g., happy, bad). Of the 15 items, 3 are specifically designed to assess the psychological discomfort associated with cognitive dissonance (i.e., uncomfortable, uneasy, bothered). Participants were instructed to indicate how they are feeling "right now" by circling numbers on the scales beside each emotion-relevant term indicating the emotion (1) "does not apply at all" to (7) "applies very much." The 10-item Rosenberg (1965) self-esteem scale was used to assess changes in self-esteem and self-concept evaluations. Finally, several items on a "Life Events Follow-Up Questionnaire" assessed participants' self-reports of the importance of the events listed in the Life Experience inventory and whether or not the events written about in the inventory task were about a valued topic. Participants were asked to indicate the extent to which they (1) strongly disagree to (7) strongly agree with the statements, "The experiences that I recalled were important to me," "The experiences that I recalled were about something that occurred in my life," and "The experiences I recalled were about something that I valued." As a check on the self-relevance manipulation, participants were asked to indicate the extent to which they (1) strongly disagreed to (7) strongly agreed with the statement, "The experiences that I recalled were about something that occurred in my life." To assess beliefs that the life experiences procedure had induced a positive mood, participants were asked to indicate the extent to which they (1) strongly disagree to (7) strongly agree with the statements, "Recalling these life experiences makes me feel good," and "The life experiences I recalled were of a pleasant nature." Following completion of these questionnaires, participants were probed for suspiciousness, debriefed, and thanked for their participation (see Appendix R for Studies 2-3 verbal debriefing). No participants were suspicious about the hypothesis.

Results

Manipulation Checks

Perceived Choice. Participants' responses to the two choice items were scored such that high scores indicated greater perceptions of choice in completing the attitude activation task. An internal consistency analysis indicated that the two items formed a reliable scale (Cronbach's alpha = .61). The manipulation of perceived choice was effective as indicated by the result that high-choice participants in the immediate condition ($M = 4.94$) reported having more choice in completing the tuition essay than low-choice/immediate participants ($M = 2.60$), $t(37) = 3.39$, $p < .01$.

Self-Relevance of Mood Induction Task. Participants' response to the item that asked them whether the events described in the life experiences task were one's that had occurred in their own life served as a check on the self-relevance of the mood induction task. The manipulation of self-relevance was effective as indicated by the result that participants who completed the happy/self-relevant task ($M = 6.84$) reported that the events they listed were more relevant to their own life then participants who had completed the happy/other-relevant task (*M* = 3.70), *t*(37) = 6.13, *p* < .01.

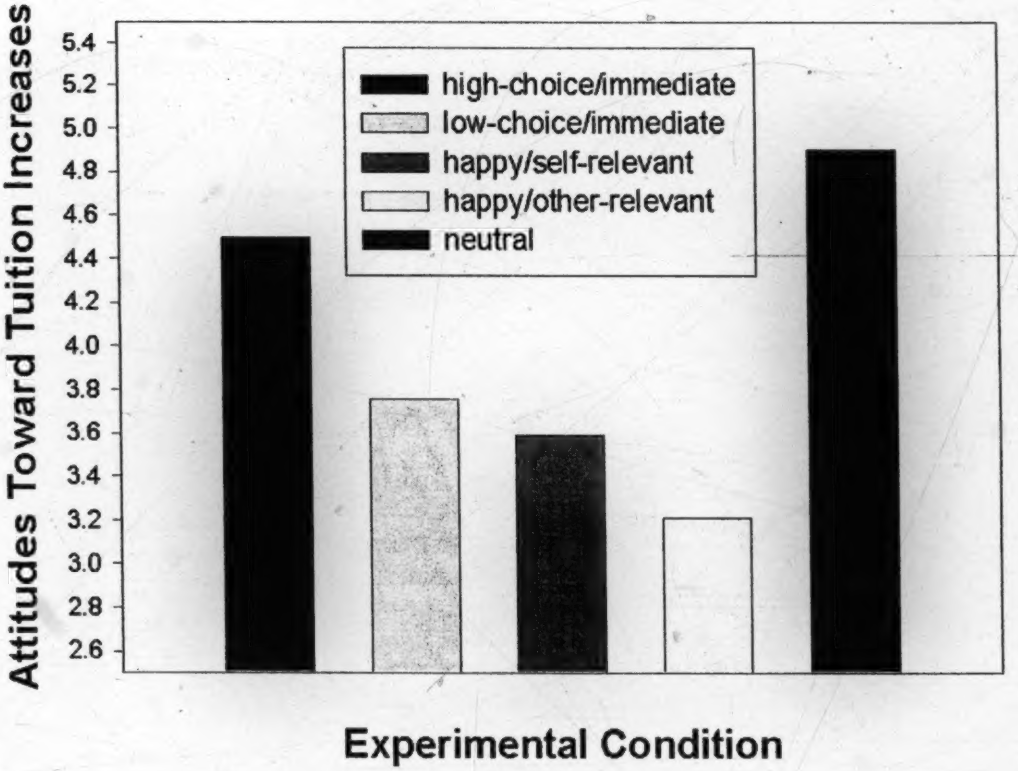
Psychological Discomfort

Participants' responses to the three items that were intended to assess feelings of discomfort (uncomfortable, uneasy, bothered) were scored such that higher values (7) indicated greater feelings of discomfort. An internal consistency analysis indicated that the three items formed a reliable scale (Cronbach's alpha = .76). The mean of these items formed a measure of psychological discomfort. Contrary to the experimental predictions there were no significant differences in reported level of discomfort between the experimental conditions, *F*(4, 96) = 1.05, *ns*. These results were not entirely unexpected given prior research demonstrating that subjective feelings of discomfort are most salient at the time of commitment to a counterattitudinal behavior and dissipate rapidly following the decision to commit to the counterattiudinal behavior (e.g., Elliot & Devine, 1994). There may have been no differences observed on the discomfort measures due to the long delay between commitment to counterattitudinal behavior in the current study (i.e., the time at which feelings of discomfort are supposed to be most prominent) and the reporting of discomfort (i.e., the immediate conditions reported their discomfort level approximately 10 minutes post-behavioral commitment and all delayed conditions reported their discomfort approximately 20 minutes after this time). However, even though felt discomfort resulting from dissonance can dissipate rather quickly, the behavioral effects (i.e., attitude change) often persist much longer (e.g., Higgins, Rhodewalt, & Zanna, 1978).

Attitudes

Participants' responses to the four attitude items were scored such that high scores (15) indicated favorable attitudes toward tuition increases. An internal consistency analysis indicated that the four items formed a reliable scale (Cronbach's alpha = .92). The mean of these items formed a measure of attitudes toward the proposed tuition increases and served as the dependent variable in a single planned orthogonal contrast. The contrast weights reflected the predictions made by the affect-as-information formulation of cognitive dissonance reduction which predicts that the attitude change reported in both the happy/self-relevant and happy/other-relevant will be reduced to the baseline levels found in the low-choice/immediate measurement condition, while attitude change will remain high in both the high-choice/immediate condition and the high-choice/neutral-delayed condition[5]. Results indicated this pattern of predicted effects was significant, $F(1, 92) = 5.77$, $p < .05$. The pattern of obtained effects is displayed in Figure 2. These results suggest that exposure to both the happy/self-relevant and happy/other-relevant mood induction procedure, following counterattitudinal advocacy, effectively reduced the attitude change that is typically observed in the induced compliance essay-writing paradigm to baseline levels. As is apparent in the figure, the typical pattern of dissonance induced attitude change was obtained in the immediate measurement conditions, with high-choice participants (*M* = 4.50) reporting greater attitude change then participants in the low-choice condition (*M* = 3.76). In addition, it would appear that for those participants exposed to mood inductions after writing the counterattitudinal essay, both the happy/self-relevant mood induction (*M* = 3.59) and the happy/other-relevant mood induction (*M* = 3.21) resulted in reduced levels of attitude change as compared to the participants exposed to the neutral mood induction procedure (*M* = 4.90). Further planned comparisons confirmed that the high choice/immediate group and neutral mood group did not significantly differ in terms of their attitudes, and that the attitude reports of the low-choice/immediate, happy/self-relevant, and happy/other-relevant groups did not statistically differ from one another, all *p*'s > .10. These results replicate the pattern of effects observed in Study 1 and provide further

FIGURE 2. Attitudes Toward Tuition Increases as a Function of Experimental Condition: Study 2.



evidence against a distraction explanation of the effects of the mood induction procedures on dissonance reduction.

Self-Reports of Value Affirmations

Participants' responses to the items on the life-experiences follow-up measure assessing their perceptions of the importance of the topic described in the mood induction procedure and the relevance of the topic to their values served as measures of the affirmation process. Higher scores (7) indicated that the topic described was of greater importance to their values. An internal consistency analysis indicated that these items formed a reliable scale (Cronbach's alpha = .88). A one-way ANOVA on this scale indicated there was a significant effect of experimental condition, $F(4, 92) = 4.29$, $p < .01$. Post-hoc analyses revealed that participants who completed the happy/self-relevant version of the mood induction ($M = 6.16$) felt that the value importance of the topic they described in the life experiences task was significantly greater then both the happy/other-relevant mood induction ($M = 4.20$) and the neutral mood induction task ($M = 4.45$), all p's $< .05$. Thus, it would appear that participants who completed the positive/self-relevant mood induction procedure believed that they were affirming an important value, more so than participants who completed the other mood induction tasks. Supporting this claim, it was also found that perceptions of value affirmation were uncorrelated with post-essay attitudes in the delayed mood-induction conditions, Pearson's $\underline{r} = .15$, *ns*.

Self-Reports of Discomfort Reduction

Participants' responses to the items examining their perceptions of the impact of the life experiences task on their current affective state served as measures of perceptions of discomfort reduction. Higher scores (7) indicated that participants believed that the task induced positive affect. An internal consistency analysis indicated that these two items formed a reliable scale (Cronbach's alpha = .90). A one-way ANOVA on this scale indicated there was a significant effect of experimental condition, $F(4, 92) = 10.20$, $p < .001$. Post-hoc analyses indicated that participants who completed either the positive/self-relevant ($M = 6.26$) or the positive/other-relevant ($M = 5.76$) forms of the mood induction did not significantly differ from one another in terms of discomfort reduction, but that participants in these conditions believed that the tasks induced a greater degree of positive affect than participants who completed the neutral mood induction task ($M = 4.00$), p's $< .05$. These results appear to suggest that the subjective experience of elevated positive affect resulting from the mood induction task may have influenced the dissonance reduction process.

Self-esteem

Participants' responses to the 10-item Rosenberg self-esteem inventory were averaged to form an index of current self-esteem. A one-way ANOVA on this index indicated there were no significant differences between the experimental conditions in terms of their reported self-esteem, $F(4, 96) = 0.80$, *ns*. Thus, it would appear that the experimental manipulations did not influence any changes in levels of self-esteem. In addition, contrary to a self-affirmational resources perspective, participants' level of self-esteem was not related to their post-essay attitudes toward tuition increases, Pearson's $r = -.03$, *ns*.

Discussion

The results of both Studies 1 and 2 suggest that exposure to procedures that elicit positive affect following counterattitudinal behavior effectively reduces the attitude change that is typically associated with induced compliance cognitive dissonance manipulations. In addition, the results of Study 2 provide more direct evidence that the experience of positive affect following counterattitudinal advocacy eliminates the attitude change typically associated with a cognitive discrepancy. Consistent with an affect-as-information view of dissonance motivation, these effects occur regardless of whether the content of the affect induction procedure is self-relevant or other-relevant. These effects do not support a self-affirmation of dissonance reduction as such a position predicts that dissonance-related attitude should only be reduced in conditions where the integrity of the self-concept is affirmed (i.e., in the happy, self-relevant mood induction condition). The results of Study 2 also replicated the pattern of effects obtained in Study 1 indicating that the completion of neutral, distracting tasks following counterattitudinal advocacy does not reduce dissonance-induced attitude change.

The results from the present study also indicated that participants' experience of positive affect following counterattitudinal advocacy was the most plausible explanation for their reduced levels of dissonance-induced attitude change. Despite the fact that only participants who completed the happy/self-relevant mood induction reported that they were describing an important value in the mood induction, participants in both the happy/self-relevant and happy other-relevant mood induction conditions reported less attitude change than participants in the neutral mood induction group. Restricting the analysis to only the delayed mood induction conditions, the negative correlation between mood induction condition (neutral or positive) and post-essay attitude appears to suggest that attitudes were reduced in the positive conditions because the induction of positive affect reduced participants' discomfort to a point that they no longer needed to add cognitions that supported their counterattitudinal behavior.

CHAPTER 4: STUDY 3

Introduction

The results of Studies 1 and 2 tend to support an affect-as-information view of dissonance reduction processes, in that exposure to incidental sources of positive and negative affect reduced the attitude change normally associated with counterattitudinal behavior. However, to provide a more convincing argument for this view of dissonance reduction, it would have to be demonstrated that participants in the negative mood induction conditions were making the attribution that the primary source of their discomfort is the negative mood induction procedure and not the counterattitudinal dissonance manipulation. The results of the Pilot Study and Study 1 would seem to indicate that participants are indeed making such an attribution, since the negative mood induction does not appear to be reducing negative affect (i.e., the negative mood induction is not inducing positive moods and therefore cannot act as a source of positive affect to aid in reducing the discomfort associated with cognitive dissonance). As well, previous research has demonstrated that sad mood participants are more likely than happy and neutral mood participants to make such misattributions (e.g., Schwarz & Clore, 1983). However, to provide more direct evidence for the affect-as-information account of dissonance reduction processes, a third study was conducted to assess participants' attributions concerning the source of their current feelings. In addition, Study 3 examined whether the effects of incidental mood inductions on dissonance reduction processes could be explained through a trivialization mechanism (e.g., Simon et al., 1995). This study also afforded us the opportunity to replicate the pattern of effects in Study 1 using both positive and negative mood inductions.

Procedures and instructions for Study 3 were similar to those used in Studies 1 & 2. Participants were given high or low choice to write counterattitudinal essays supporting substantial increases in tuition fees. To assess the effectiveness of the essay task at inducing cognitive dissonance, 2 groups of participants completed attitude measures immediately following the essay-writing task. Following the dissonance induction, the remaining participants were exposed to either happy/self-relevant, happy other-relevant, sad/self-relevant, or neutral mood induction procedures. Following these procedures, participants completed measures assessing attitudes toward tuition increases, trait self-esteem, as well as manipulation checks measuring their perceived choice in writing the counterattitudinal essay. Also, to assess the self-affirming properties of the mood induction task, like in Study 2, participants rated the extent to which the topic they described in the mood induction procedure was important and embodied their values. To assess the discomfort reducing properties of the mood induction, participants indicated the extent to which the mood induction made them feel good and involved pleasant experiences. To assess potential misattributions, participants completed measures to assess their attributions about the sources of their current mood (see Appendix S). On a final page, participants were asked to indicate the extent to which they were trivializing or reducing the importance of their beliefs about tuition increases (see Appendix T).

It was predicted that, much like Study 2, as a result of the counterattitudinal manipulation of perceived choice, levels of attitude change in immediate measurement condition would be greater in the high-choice condition (in comparison to the low-choice/immediate condition). Replicating the results of the previous studies, it was also predicted that exposure to either the happy/self-relevant, happy/other-relevant, or sad mood induction after the writing of a counterattitudinal essay would result in reduced levels of attitude change; attitudes would not be reduced in the delayed neutral mood induction condition. Furthermore, to provide greater support for the affect-as-information model of dissonance reduction, it was predicted that participants in the sad mood induction condition would be more likely to make the attribution that the mood induction procedure was the primary source of their current mood and less likely to attribute their mood to the counterattitudinal essay manipulation as compared to participants in all other delayed conditions. In terms of the trivialization measures, it was predicted that there would be no differences among the various experimental groups as the current research endeavor predicts that participants use dissonance reduction strategies that are aimed at addressing the affective signal to action conveyed by dissonance discomfort.

Finally, it was predicted that the results of the self-affirmation and discomfort reduction measures would yield results consistent with those of Study 2; participants in the delayed mood induction conditions should report that they were affirming a value in both of the self-relevant mood induction conditions (i.e., happy and sad) but not in the happy/other-relevant or neutral mood conditions. Meanwhile, with regards to discomfort reduction, it was predicted that participants in both the happy/self-relevant and happy/other-relevant conditions would report that the mood induction task made them feel more positive affect than in the neutral condition but that participants in the sad mood condition would report that the induction had made them feel less positive affect than in the neutral condition.

Method

Participants

Participants were 121 undergraduate students who had indicated in a previous mass-testing session that they were (1) strongly opposed to tuition increases at the university of Alberta on a 15-point Likert scale[6]. All were volunteers who participated in order to fulfill a course requirement.

Procedure

Participants were randomly assigned to one of 6 experimental conditions that, similar to Study 2, were created by varying the time at which affect and attitudes were assessed and the types of mood induction to which participants were exposed. The conditions included: 2 baseline conditions (high-choice/immediate and low-choice/immediate) and 4 high-choice/delayed mood induction exposure conditions (happy/self-relevant, happy/other-relevant, sad, and neutral).

The procedure and materials used in Study 3 were identical to those used in Study 2 except for the addition of two questionnaire items designed to assess whether participants were reducing dissonance by trivialization (adapted from Simon, et al. 1995) and 2 items designed to assess participants' attributions about the source of their current mood. These misattribution measures were included on the last page of the packet that was completed following the mood induction procedure. Specifically, participants responded to a pair of questions; the questions asked participants to indicate the extent to which they agreed or disagreed with the statement, "The attitude activation/life experiences task is the main source of my current mood." Responses to these 2 items were made on 7-point Likert scales, on which higher values indicated a greater endorsement of the attribution. Following completion of all questionnaires, sad mood induction participants were exposed to a mood restoration procedure and all participants were probed for suspiciousness, debriefed, thanked for their participation. No participants were hypothesis suspicious.

Results

Manipulation Check

Perceived Choice. Participants' responses to the two choice items were scored such that high scores indicated greater perceptions of choice in completing the attitude activation task. An internal consistency analysis indicated that the two items formed a reliable scale (Cronbach's alpha = .64). The manipulation of perceived choice was effective as indicated by the result that high-choice participants in the immediate condition (*M* = 5.48) reported having more choice in completing the tuition essay than low-choice/immediate participants (*M* = 3.13), *t*(48) = 3.94, *p* < .001.

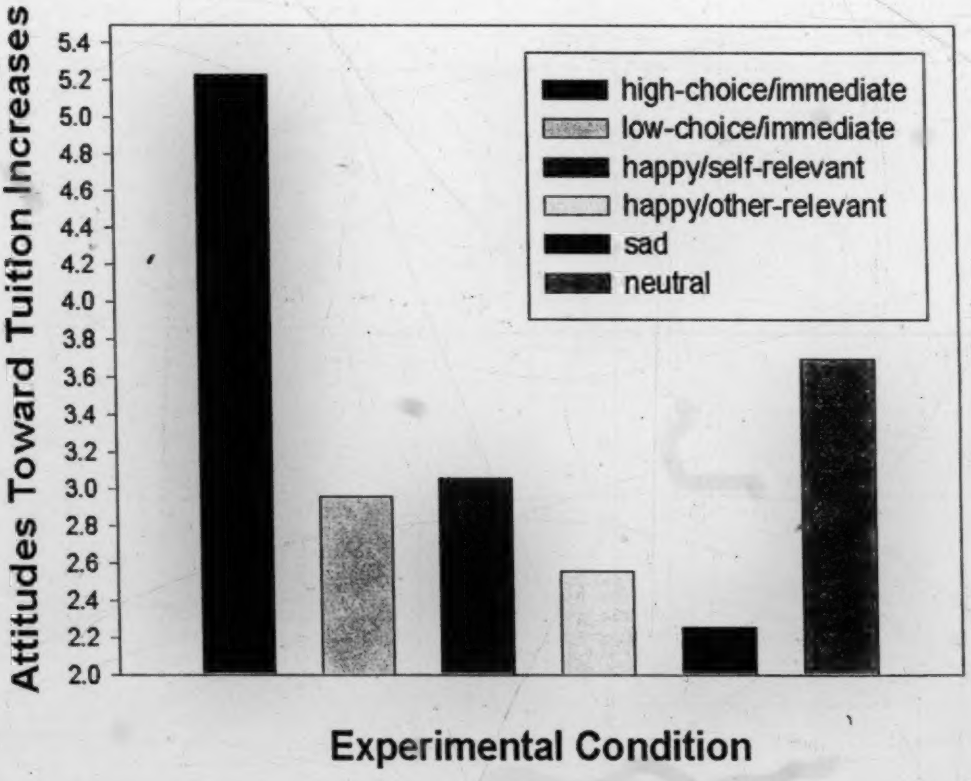
Self-Relevance of Mood Induction Task. Participants' response to the item that asked them whether the events described in the life experiences task had occurred in their own life served as a check on the self-relevance of the mood induction task. The manipulation of self-relevance was effective as indicated by the result that participants who completed the happy/self-relevant task (M = 6.50) reported that the events they listed were more relevant to their own life then participants who had completed the happy/other-relevant task (*M* = 2.45), *t*(38) = 9.31, *p* < .01.

Attitudes

Participants' responses to the 4 attitude items were scored such that high scores (15) indicated favorable attitudes toward tuition increases. An internal consistency analysis indicated that the four items formed a reliable scale (Cronbach's alpha = .94). The mean of these items formed a measure of attitudes toward the proposed tuition increases and served as the dependent variable in a single planned contrast. The contrast weights reflect the predictions made by the affect-as-information formulation of cognitive dissonance reduction that the attitude change reported in both the happy/self-relevant, happy/other-relevant, and sad mood induction conditions is reduced to the baseline levels found in the low-choice/immediate measurement condition, while attitude change remains high in both the high-choice/immediate condition and the high-choice/neutral-delayed condition[7]. Results indicated this pattern of predicted effects was significant, $F(1, 115) = 14.28$, $p < .05$. The pattern of obtained effects is displayed in Figure 3.

As is apparent in the figure, the typical pattern of dissonance induced attitude change was obtained in the immediate measurement conditions, with high-choice participants ($M = 5.23$) reporting greater attitude change than participants in the low-choice condition ($M = 2.96$). Moreover, in support of the current predictions, participants exposed to either a happy/self-relevant ($M = 3.06$), happy/other-relevant ($M = 2.56$), or sad mood induction ($M = 2.26$) reported less attitude change then those participants exposed to the neutral-distraction induction ($M = 3.70$). These results suggest that exposure to either a happy or sad mood induction following counterattitudinal advocacy helps reduce the resulting attitude change to baseline levels.

FIGURE 3. Attitudes Toward Tuition Increases as a Function of Experimental Condition: Study 3.



Attributions About The Sources of Current Mood

To examine the attributions that participants were making for the sources of their current mood, responses to the two attribution items were examined to determine if there were any differences between the groups who completed a mood induction task prior to completing the attitude questionnaire (i.e., all 4 delayed measurement conditions). Specifically, it was predicted that participants in the sad mood induction condition were more likely to indicate that the life experiences task was the main source of their mood and attribute a less prominent role for the attitude activation task. Thus, to create an index of misattribution, the item assessing the role of the attitude activation task in current mood was reverse-scored and combined with the life-experiences attribution question. This misattribution index served as the primary dependent measure in a single planned contrast[8]. The contrast weights reflected the prediction made by the affect-as-information formulation of cognitive dissonance that participants in the sad mood induction condition would attribute a more prominent role for the life experiences task as a source of their current mood and attribute a less prominent role for the dissonance manipulation in their mood. As expected, results indicated that this contrast was significant, $F(1, 77) = 6.06$, $p < .05$. Participants who completed the sad mood induction procedure tended to attribute a more prominent role for the life experiences task as a source of their current mood ($M = 5.05$), while participants in the happy/self-relevant ($M = 4.53$), happy/other-relevant ($M = 4.23$) and neutral conditions ($M = 4.40$) were less likely to endorse such an attribution.

Self-Reports of Value Affirmations

The same measures used in Study 2 to assess participants' perceptions of the importance of the topic described in the mood induction procedure and the relevance of the topic to their values served as checks on the affirmation process. An internal consistency analysis indicated that these items formed a reliable scale (Cronbach's alpha = .81). A one-way ANOVA on this scale indicated there was a significant effect of experimental condition, $F(5, 115) = 8.48$, $p < .01$. Post-hoc analyses revealed that participants who completed the happy/self-relevant version of the mood induction ($M = 5.85$) did not differ from the participants who completed the sad mood induction ($M = 6.52$) in their perceptions of the value importance of the topic they described in the life experiences task. However, these two groups reported that the value importance of the topic they described in the life experiences task was significantly greater then both the happy/other-relevant mood induction ($M = 4.10$) and the neutral mood induction task ($M = 4.83$), all p's $< .05$. Thus, it would appear that participants who completed the positive/self-relevant and sad mood inductions believed that they were more strongly affirming an important value than participants who completed the other mood induction tasks.

Self-Reports of Discomfort Reduction

Participants' responses to the items examining their perceptions of the impact of the life experiences task on their current affective state served as measures of perceptions of discomfort reduction. Higher scores (7) indicated that participants believed that the mood induction task induced positive affect. An internal consistency analysis indicated that these two items formed a reliable scale (Cronbach's alpha = .91). A one-way ANOVA on this scale indicated there was a significant effect of experimental condition, $F(5, 115) = 24.05$, $p < .001$. Post-hoc analyses indicated that participants who completed either the positive/self-relevant ($M = 6.20$) or the positive/other-relevant ($M = 5.28$) forms of the mood induction task believed that the tasks induced a greater degree of positive affect than the neutral ($M = 3.80$) and sad ($M = 1.88$) mood induction tasks, all p's $< .05$. These results suggest that participants' perceived experience of positive affect may have influenced the dissonance reduction process and combined with the results from the misattribution measures provide the strongest evidence that exposure to sources of incidental positive mood reduce dissonance by reducing the discomfort associated with the cognitive discrepancy, while exposure to sources of negative affect reduce dissonance through a misattribution process.

Trivialization

Participants' responses to the items assessing the extent to which they reduced the importance of their beliefs regarding the essay topic served as measures of trivialization. Lower scores (1) indicated that participants felt that the issue of tuition increases was trivial to their beliefs. An internal consistency analysis indicated that these two items formed a reliable scale (Cronbach's alpha = .61). A one-way ANOVA on this scale indicated that there were no reliable differences between the experimental conditions in their propensity to trivialize the topic of the counterattitudinal essay, $F(5, 115) = 0.76$, *ns*. Thus, it would appear that exposure to incidental sources of positive, negative, or neutral affect does not increase the tendency to trivialize one's beliefs that are associated with the counterattitudinal discrepancy.

Discussion

Consistent with the results from Studies 1 and 2, the results from the present study suggest that exposure to incidental sources of either positive or negative affect reduces dissonance-induced attitude change. The results from Study 3 also provide more direct evidence that participants exposed to incidental sources of negative affect following counterattitudinal advocacy reduce cognitive dissonance through a misattribution process, while participants exposed to positive mood inductions reduce dissonance by discomfort reduction. Participants in Study 3 who completed a sad mood induction procedure were more likely to make the attribution that the mood induction procedure was the primary source of their mood than were participants exposed to happy or neutral mood induction procedures. Consistent with the results of Study 2, participants exposed to positive mood inductions indicated that only the self-relevant form of the mood induction affirmed important values, but that both the self-relevant and other-relevant forms of the happy mood induction reduced discomfort. Thus, discomfort reduction appears to reduce cognitive dissonance rather then self-affirmation. In addition, the results of the present study suggest that completion of mood induction procedures following a dissonance induction do not reduce dissonance through a trivialization process (e.g., Simon et al. 1995).

CHAPTER 5: STUDY 4

Introduction

Combined, the results from studies 1 through 3 provide confirmatory support for the affect-as-information model of cognitive dissonance reduction. However, it remains unclear whether the primary motivation underlying dissonance reduction is that of reducing or reinterpreting the unpleasant affect associated with cognitive discrepancy. A number of different models have been proposed to account for the motivating effects of cognitive discrepancy. For example, Festinger (1957) and more recently Harmon-Jones & Harmon-Jones (2002) have argued that the experience of discomfort associated with a cognitive discrepancy enacts a diffuse motivational tendency to action. Hence, people who are experiencing cognitive dissonance will show a generalized preference for any type of task that might reduce dissonance and will seize on the most readily available strategy that reduces or explains the discomfort that results from cognitive discrepancy.

Proponents of the self-affirmation view of dissonance reduction (e.g., Steele et al. 1993), however, argue that strategies that reaffirm the integrity of the self-concept are the preferred mode of dissonance reduction. Although these two models appear to make seemingly contradictory predictions, they can be resolved if one makes the assumption that self-referent dissonance reduction strategies (i.e., affirmational strategies) might be the most readily available and easily accessible modes of discrepancy resolution. Based upon past research that has explored the motivational benefits of the self-concept in terms of information processing and organization (e.g., Cantor, Markus, Nurius, & Niedenthal, 1985; Markus, 1977; Rogers, Kuiper, & Kirker, 1977), it can be speculated that people will show a preference for self-referent information processing strategies even when not experiencing dissonance and that the motivation aroused by cognitive discrepancy merely heightens preferences for dissonance resolution using self-resources as compared to other possible reduction strategies.

More recently, Stone et al. (1997) introduced an alternative explanation for the motivation underlying dissonance reduction. Stone et al. (1997) argued that people experiencing cognitive dissonance prefer more direct dissonance reduction strategies, in which the domain of the cognitive discrepancy is confronted (i.e., attitude or behavior change), to the more indirect reduction strategies (i.e., self-affirmations, incidental affect inductions), in which the source of the discrepancy is not confronted. However, Stone et. al. (1997) provided little justification for the prediction as to why such direct strategies would be more prevalent. Presumably direct strategies are preferred because they are the quickest and most accessible mode of discrepancy resolution (but see the selfschematic account above). This model seems appealing as it can account for the fluidity of belief and behavior change, yet it seems to suggest that there would be little consistency in people's attitudes and behaviors from situation to situation if they continually resolve any discrepancies they experience through the use of direct strategies (i.e., people would continually alter their beliefs in response to situational constraints). However, attitudes and beliefs can be quite stable and resistant to change (e.g., for a review see Eagly & Chaiken, 1993) despite the presence of strong pressures encouraging belief revision. Indeed, important beliefs may often be bolstered rather than changed if they are threatened by attitude-discrepant behaviors (e.g., Burris et al., 1997). In addition to this problem, Stone et al. (1997) based their model of dissonance reduction on the results from a dissonance paradigm in which there is less flexibility in choice of dissonance reduction strategies (i.e., the hypocrisy paradigm) and failed to obtain results indicating that participants prefer direct dissonance reduction strategies in counterattitudinal paradigms such as those used in the previous studies.

Based on the results of Studies 1-3, it remains unclear whether participants in fact prefer more direct dissonance reduction strategies to indirect dissonance reduction strategies that reduce the discomfort associated with cognitive dissonance. Participants in the delayed measure conditions in Studies 1-3 were assigned to mood induction conditions and not offered the choice of a direct reduction strategy prior to completing the mood induction task. Also, it was unclear based on the design of the previous studies, whether participants, in fact, prefer self-relevant dissonance reduction strategies to less direct, other-relevant reduction strategies. To provide further support for the affect-as-information model of dissonance reduction, a final study was conducted to examine if participants who are experiencing cognitive dissonance have distinct preferences for a particular strategy of dissonance reduction. To examine this hypothesis, participants were offered a choice amongst a variety of tasks, including a task that will directly resolve their cognitive discrepancy, and an indirect task that will reduce the psychological discomfort associated with their cognitive discrepancy.

Procedures and instructions for Study 4 were similar to those used in Studies 1, 2, and 3 (see Appendix U for experimental script). After obtaining consent (see Appendix V), participants were given either high or low choice to write counterattitudinal essays supporting substantial increases in tuition fees. Following the dissonance manipulation, participants were asked to read descriptions of four tasks that they could complete in the remaining experimental time and rate each task in terms of their interest in completing the task (see Appendix W for task descriptions and rating scales). The written descriptions of the tasks were such that they could involve either direct confrontation of the cognitive discrepancy (i.e., focus on attitudes toward tuition increase), an indirect dissonance reduction strategy that would affirm the self (i.e., the positive self-relevant mood induction), an indirect dissonance reduction strategy that conveyed pleasant affect but did not focus on the self (i.e., the positive/other-relevant mood induction), or a neutral distracting task (i.e., the neutral mood induction task). Task descriptions were presented in counterbalanced orders between subjects. After reading each description, participants rated their interest in completing the task.

If dissonance involves a diffuse motivational state, then high-choice participants should rate all tasks as being more desirable to complete then the low-choice participants. In addition, if participants prefer direct dissonance reduction strategies, high choice participants who are given an opportunity to choose their dissonance reduction route should show a preference for the task that would allow them to directly confront their cognitive discrepancy (i.e., the tuition increases opinion task). If participants prefer strategies that will decrease the psychological discomfort associated with cognitive dissonance, they should prefer strategies that convey positive affect. If participants prefer self-affirming tasks, they should show a preference for the strategy that focuses on the self and conveys positive affect.

Method

Participants

Participants were 61 undergraduate students who had indicated in a previous mass-testing session that they were opposed to tuition increases at the University of Alberta[9]. All were volunteers who participated in order to fulfill a course requirement.

Procedure

Participants were run in individual sessions. Once they arrived for a session, participants were randomly assigned to one of 3 experimental conditions, that were created by varying the level of perceived choice in writing the essay advocating tuition increases (high vs. low) and the time at which attitudes were assessed (immediate; following the essay writing task vs. delayed; following choice of dissonance reduction route). There was only a single low-choice/immediate measure group included in the experimental design to act as a baseline-comparison group for the remaining 2 high-choice experimental conditions. Procedures, materials, and instructions for the essay-writing task were identical to those used in Studies 1-3. Following the essay-writing task, half of the high-choice participants and the low-choice group completed a questionnaire packet that contained attitude change measures and manipulation checks, similar to the ones used in Studies 2-3, followed by the task preference measures. The remaining high-choice group completed the task preferences measures followed by the attitude change measures and manipulation checks.

To assess task preferences, participants were told that the experimenter had designed several tasks intended to explore students attitudes and experiences in more detail, and since the project was in an early phase of data collection, participants were now being asked to read descriptions of the experimental tasks that they could complete and rate their interest in completing the task. It was indicated by the experimenter that by collecting these data, it was hoped that the researchers could gain a clearer understanding of students' attitudes and life experiences.

Participants were then handed a packet containing randomly ordered descriptions of the 4 experimental tasks. They were instructed to read each description and then rate the task using the scales provided. Each page of the booklet contained a description of 1 of 4 possible experimental tasks and 4 Likert-type rating scales designed to assess participants' interest in completing the task. One of the tasks was described as a "Student Tuition Increases Opinion Task" and indicated that participants would be required to respond to questions that provided a more detailed exploration of their attitudes toward tuition increases. A second task was described as a "Positive Life Experiences Recall Task" in which participants would be asked to focus on events that had occurred to them in the past that had made them feel very, very happy and then respond to questions about these events. A third task was described as a "Positive Leisure Experiences Recall Task" in which participants would be asked to focus on events that had made a character they encountered feel very, very happy and then respond to questions about these events. A fourth task was described as a "Daily Life Experiences Recall Task" which required to recall and respond to questions about any events that had happened to them in past few days. Participants motivation to complete the task was assessed by indicating the extent to which they (1) strongly disagree to (7) strongly agree with the following 4 statements: "I will enjoy completing this task," "I believe that this task will have desirable consequences," "I believe that I could learn a lot from this task," and "I would very much like to complete this task." After rating each of the 4 tasks, participants were asked to rank order each of the tasks from 1 to 4 with the most desirable task ranked number 1 and the least desirable task ranked number

4. Following completion of the booklet, participants in the delayed condition were asked to complete attitude measures and manipulation checks much like the ones presented to immediate measurement groups. All participants were then probed for their suspicions about the hypothesis under study, debriefed, and thanked for their participation (see Appendix X for verbal debriefing). No participants were hypothesis suspicious.

Results

Manipulation Check

Perceived Choice. Participants' responses to the two choice items were scored such that high scores indicated greater perceptions of choice in completing the attitude activation task. The manipulation of perceived choice was effective as indicated by the result that high-choice participants in both the immediate condition ($M = 4.78$) and the delayed condition ($M = 5.38$) reported having more choice in completing the tuition essay than low-choice/immediate participants ($M = 3.92$), $F(2, 58) = 3.61$, $p < .05$.

Attitudes

Participants' responses to the 4 attitude items were scored such that high scores (15) indicated favorable attitudes toward tuition increases. An internal consistency analysis indicated that the four items formed a reliable scale

(Cronbach's alpha = .80). The mean of these items formed a measure of attitudes toward proposed tuition increases and served as the dependent variable in one-way ANOVA. As expected, results indicated a significant main effect for experimental condition, $F(2, 58) = 3.57$, $p < .05$. Participants' in both the high-choice immediate condition (M =3.17) and the delayed condition (M = 3.51) displayed the typical pattern of dissonance-induced attitude change, reporting more favorable attitudes toward tuition increases than did participants in the low-choice/immediate condition (M = 2.26). This pattern appears to suggest the counterattitudinal dissonance manipulation was effective, but also that simply considering possible dissonance reduction routes is not sufficient grounds for reducing the attitude change that results from cognitive discrepancy.

Task Preferences

Participants' ratings of the experimental tasks on each of the 4 scales were scored such that higher scores (7) reflected a stronger preference to complete the task. An internal consistency analysis of the ratings for each of the tasks indicated that these 4 items formed a reliable scale with alpha's ranging from .73 (for the direct reduction strategy) to .89 (for the positive/other-relevant strategy). These 4 items were averaged to form an index of dissonance reduction route preference and served as dependent measures in a 3(experimental condition:

high-choice/immediate, high-choice/delayed, low-choice/immediate) X 4(dissonance reduction task) mixed ANOVA, in which experimental condition served as a between-subjects factor and dissonance-reduction task was a within-subjects factor. The results of this analysis indicated that there was a main effect for experimental condition, $F(2, 58) = 3.38$, $p < .05$. Post-hoc analyses revealed that participants in both the high choice/immediate condition ($M = 5.70$) and high choice/delayed condition ($M = 5.64$) tended to show a significantly greater interest in completing the tasks that they read about as compared to the low-choice group ($M = 4.97$), p's < .05. These results appear to suggest that participants experiencing cognitive dissonance show a heightened action tendency, consistent with Festinger's original conceptualization of cognitive dissonance. In addition, there was a significant main effect for type of task, $F(3, 174) = 5.41$, $p < .05$. Post-hoc analyses indicated that participants had significantly less interest in completing the positive/other-relevant task ($M = 4.93$) than in completing the positive self-relevant ($M = 5.85$), neutral ($M = 5.50$), and direct reduction ($M = 5.47$) tasks, p's < .05. All other comparisons between task preferences were not statistically significant. Such a pattern of results does not favor a self-affirmation model of dissonance motivation, as there was no clear preference for self-relevant tasks.

Task Rankings

Participants' rankings of each of the 4 tasks, in terms of their personal interest in completing them, were each analyzed separately to determine if there were any contingencies between participants' experimental condition and the ranking of each task. Since there were no differences in the preferences of the high-choice immediate and delayed conditions, the rankings were collapsed across high-choice conditions and compared with those of the low-choice control condition. Of these analyses, there were two significant results. First, participants in the high-choice conditions tended to rank the positive/other-relevant task more highly than did participants in the low-choice condition. In the high-choice conditions, 40.4% (17 / 42) of the participants ranked the positive/other-relevant task as either their first or second preference, while only 26.2 % (5 / 19) of participants in the low choice condition ranked this task as their first or second preference, likelihood ratio χ^2 (3) = 7.57, *p* =. 05.

Complementing this result, participants in the high-choice condition ranked the neutral distracting task as being less desirable than did the low-choice participants. In the high-choice conditions, 52.3 % of participants (26 / 42) ranked the neutral distraction task as their third or fourth preference, while 21.1 % of participants (4 / 19) in the low- choice conditions ranked this task as their third or fourth preference, likelihood ratio χ^2 (3) = 7.87, $p < .05$. Participants' ranking of the positive/self-relevant task and the direct dissonance reduction task were not contingent upon their experimental condition, all χ^2's (3), *ns*. These results appear to suggest that high-choice participants have a slightly elevated preference for tasks that may induce positive affect, and lower preferences for more neutral tasks that neither induce positive affect nor directly confront the domain of the cognitive discrepancy.

Discussion

The results of Study 4 suggest that the experience of a cognitive discrepancy arouses a diffuse action tendency, consistent with the predictions of the original formulation of cognitive dissonance theory (e.g., Festinger, 1957; Harmon-Jones & Harmon-Jones, 2002; Harmon-Jones, Peterson, & Vaughn, 2003). These results are also consistent with the affect-as-information reinterpretation of the dissonance phenomena proposed in the present research, which predicts that the discomfort associated with the holding of inconsistent cognitions signals to the individual that something is problematic with their current state of affairs. Presumably the information provided by dissonance discomfort signals to the individual that something, nonspecific, in their affairs requires attention and will need to be changed. Participants in the high-choice conditions, who were presumably experiencing a heightened level of cognitive dissonance, showed a stronger preference for completing any one of the tasks that were presented to them as compared to the low-choice control group. As well, in terms of overall task ratings, all participants indicated less favorable ratings of the positive/other-relevant task. This lower overall rating may have occurred because people viewed the task as more difficult to complete as it involved recalling events from another person's perspective, while all other tasks focused on personal experiences. However, the results of these task ratings were qualified by the rankings participants' provided when asked to choose a task they wanted to complete. Participants experiencing dissonance assigned higher overall rankings to the positive other-relevant task as compared to low-choice participants. As well, high choice participants assigned lower overall ranks to the neutral task, suggesting that they preferred to avoid tasks that would neither reduce their dissonance directly nor impact their level of discomfort. Such a pattern of results is consistent with the original formulation of dissonance theory (e.g., Festinger, 1957). Combined with the results of Studies 1-3, the results suggest that participants can reduce dissonance induced attitude change by either reducing or reinterpreting the psychological discomfort associated with the cognitive discrepancy and that the path of least resistance is preferred to accomplish this cognitive restructuring.

CHAPTER 6: GENERAL DISCUSSION

Summary of Results

The four studies outlined here provide a more detailed understanding of the role of incidental affect in dissonance arousal and reduction processes. The results of Study 1 indicated that the experience of a happy or sad mood following the writing of a counterattitudinal essay effectively reduces the attitude change that typically results from such behavior. This outcome replicates and extends research in which manipulations of incidental positive affect (e.g., Cooper et al., 1978; Kidd & Berkowitz, 1976) have been shown to reduce cognitive dissonance, but also suggests that the experience of incidental negative affect following a counterattitudinal behavior can reduce cognitive dissonance. The effects of incidental sad mood inductions on dissonance reduction appear to be due to a misattribution process (Zanna & Cooper, 1974). In addition, the results from Study 1 suggest that the obtained pattern of effects cannot be explained by an alternative self-affirmation explanation (Steele & Liu, 1983), as both self-referent and other-referent mood inductions reduced dissonance-induced attitude change. These results also cannot be attributed to the distracting effects of the mood induction procedures (e.g., Zanna & Aziza, 1976), since dissonance-induced attitude change was still present in the neutral distracting condition but not in the happy or sad mood induction conditions.

Study 2 replicated the pattern of effects obtained with the happy mood inductions in Study 1 and provided more specific evidence that the experience of a happy mood following counterattitudinal behavior reduces dissonance by indirectly reducing the discomfort that is associated with the psychological inconsistency and not through a value-affirmation process. Furthermore, this pattern of effects was not related to participants' trait self-esteem, arguing against a self-consistency model of cognitive dissonance (e.g., Aronson, 1969), which predicts that people high in self-esteem experience greater levels of dissonance in response to counterattitudinal advocacy because highly valued cognitions about the self-concept are threatened by such behavior. These results also contradict an affirmational resources perspective (e.g., Steele et al., 1993), which predicts that people high in trait self-esteem are less likely to change their attitudes as a result of psychological inconsistency because they have greater self-concept related resources to counteract or defend against dissonance-related discomfort.

The results of Study 3 conceptually replicated the patterns of effects in Studies 1 and 2, demonstrating that both happy and sad mood inductions reduce the attitude change that is typically associated with counterattitudinal behavior. In addition, the results of Study 3 replicated those obtained in Study 2 with the measures of discomfort reduction and value-affirmation. This pattern of effects supported the predictions derived from the affect-as-information extension of dissonance reduction and suggested that the reduction in inconsistency-related discomfort was responsible for the lower levels of attitude change in the happy/self-referent and happy/other-referent mood induction conditions. Furthermore, the results from Study 3 provided the clearest evidence that exposure to sad mood inductions following counterattitudinal advocacy reduces dissonance through a misattribution or affect reinterpretation mechanism. Participants exposed to a sad mood induction were more likely to indicate that the mood induction was the primary source of their current mood and less likely to indicate that the dissonance manipulation was responsible for their current feelings. The results of Study 3 also suggest that the effects of mood inductions on dissonance-induced attitude change cannot be attributed to a trivialization mechanism (e.g., Simon et al., 1995)

Finally, the results of Study 4 suggest that, consistent with Festinger's original conceptualization, the experience of cognitive dissonance appears to result in a diffuse motivational state. Participants who were given high choice in writing a counterattitudinal essay reported stronger preferences for completing an array of tasks that could potentially lead to discomfort reduction than participants who were given less choice in completing the essay task. In terms of participants' task rankings, high choice participants assigned higher overall rankings to the task that induced positive affect but did not reference the self as compared to the rankings of the low choice group. Such a pattern of effects provides further support for the idea that participants experiencing a cognitive discrepancy may show heightened preferences for tasks that will potentially reduce the discomfort associated with cognitive dissonance. Complementing this result, high-choice participants indicated lower overall rankings for the neutral-distracting task than did the low-choice group, suggesting that participants who experience cognitive dissonance prefer to avoid neutral, distracting tasks that will neither reduce an inconsistency directly, nor reduce their felt discomfort. Overall, these results suggest that participants prefer to reduce dissonance through the most available means but there may be stronger preference for tasks that reduce discomfort than for distracting tasks.

Theoretical Implications of Studies 1-4

Taken together, the results from Studies 1-4 suggest that exposure to incidental sources of positive and negative affect following counterattitudinal behavior can reduce cognitive dissonance and its pressure to align attitudes with salient counterattitudinal behaviors. The results of these studies provide support for the original formulation of dissonance theory (Festinger, 1957), which specified that dissonance is an emotional state that motivates efforts aimed at resolving psychological inconsistencies. In Studies 1-3, I obtained evidence indicating that, when the negative affect associated with cognitive dissonance is either reduced by activities that induce positive affect or re-interpreted as uninformative to the meaning of one's recent behaviors, the attitude change typically associated with counterattitudinal behavior is reduced to baseline levels. Thus, it appears when action has been taken to address the discomfort associated with dissonance, other more direct resolution strategies are no longer required.

Such a pattern of results is also consistent with an action-based model of dissonance (e.g., Harmon-Jones & Harmon-Jones, 2002) which suggests that the experience of dissonance related discomfort enacts two motivational tendencies, one aimed at directly resolving the inconsistency and another directed toward reducing the discomfort associated with dissonance. Consistent with this model, the results of the present studies demonstrated that actions that reduce/reinterpret the discomfort associated with dissonance also reduce the need for resolution of the psychological inconsistency (i.e., less dissonance induced attitude change).

In addition to these models of cognitive dissonance, the present results provide support for the affect-as-information extension of dissonance processes that was proposed at the outset of these studies. This theoretical extension helps to explain the factors that result in dissonance arousal, and also makes specific predictions regarding the outcomes of dissonance reduction efforts. Beginning with the assumption that an individual's current feelings inform them about the state of their world and can tell them when action is required, this model predicts that beliefs dealing with a person's important goals and values will provide them with the strongest feeling of dissonance if there is inconsistency among two of these type of cognitions. When an inconsistency is made salient, psychological discomfort is aroused (e.g., Elliot & Devine, 1994) and signals to the individual that their current state of affairs is problematic and action must be taken to address some as yet to be specified problem. This model identifies three general routes to dissonance reduction. First, if participants are asked indicate their beliefs in the form of a immediate post-essay attitude probe, the affective signal stemming from the cognitive inconsistency prompts them to scrutinize the sources of their beliefs and revise their attitudes based on recent counterattitudinal behavior. If the inconsistency is not resolved, participants experiencing dissonance can either attempt to indirectly reduce the discomfort by engaging in activities that reduce negative affect or reinterpret the meaning of their negative affect in terms of other recent negative events.

The present set of studies also provides evidence that argues against self-affirmation explanations (e.g., Steele & Liu, 1983) of dissonance reduction processes. In Studies 1-3 it was demonstrated that participants exposed to both happy/self-referent and happy/other-referent mood induction procedures did not exhibit the typical pattern of dissonance induced attitude change. It was argued that the self-affirmation model of dissonance reduction only predicts dissonance reduction in the self-referent condition. To bolster my claim that participants were affirming an important value in the self-referent but not other-referent condition, in Studies 2 and 3 it was demonstrated that participants believed that that the mood induction task was affirming an important value in the happy/self-referent but not other-referent conditions. In addition, across Studies 1-3 it was demonstrated that dissonance-induced attitude change was still present in the neutral/distraction condition arguing against a distraction explanation of the effects.

Limitations and Directions for Future Research

Although the results of the present set of studies provide strong support for the affect-as-information reformulation of dissonance theory, the limitations of this research deserve some mention. First, the results from the present studies were obtained exclusively through the counterattitudinal essay-writing paradigm that is most commonly used in dissonance research. It is unclear whether the results of the present studies will generalize to other dissonance research paradigms. To assess the external validity of these effects, future studies might examine whether the experience of incidental positive or negative affect reduces dissonance in other commonly used research paradigms. For example, future studies might examine whether the experience of incidental happy or sad moods reduces the typical spreading of choice alternatives (e.g., Brehm, 1956) immediately following a difficult choice between two alternatives or whether mood inductions decrease attitude bolstering in the belief disconfirmation paradigm (e.g., Burris et al., 1997). In addition, the practical implications of having people focus on positive events following an unexpected disconfirmation of their beliefs, values, and worldviews might be explored to determine if such a manipulation inhibits maladaptive belief rigidity.

Second, the affect-as-information extension of dissonance theory makes predictions about when the experience of negative affect will result in belief revision and when it will reduce attitude change. However, the present set of studies only examined one of these possibilities: when the experience of negative affect reduces dissonance effects. According to the predictions of the current model, if an individual does not make the attribution that another salient source caused their negative affect, then the additive effects of an incidental event that evokes negative affect and the experience of a psychological inconsistency may in fact lead to even stronger efforts aimed at inconsistency resolution and potentially greater dissonance induced attitude change. To address this possibility, future research might examine the impact of salient, labeled negative mood states and less salient, unlabelled negative affect on the dissonance reduction process. For example, a misattribution paradigm could be employed in a study where participants make smiling or frowning facial expressions while writing counterattitudinal essays (e.g., Rhodewalt and Comer, 1979). While writing the essays, some participant's attention could be drawn to their facial expressions as a source of their current mood (e.g., Schwarz & Clore, 1983; Sinclair, Mark, & Clore, 1994). According to the present affect-as-information account, frowning participants who are not aware of the their facial expression as a source of their feeling should report greater attitude change (as compared to a neutral expression group), while cued, frowning participants with an external attribution for their mood will likely not exhibit any dissonance induced attitude change.

Finally, the present set of studies was only intended to examine how incidental sources of positive and negative affect influence the dissonance reduction process, after an existing inconsistency in cognitions is made salient. Future research might examine whether incidental mood manipulations presented prior to a dissonance manipulation increase or decrease efforts aimed at inconsistency resolution. Such a strategy might help provide an important bridge between theories of self-processes implicated in dissonance processes and the current mood based explanation of dissonance reduction effects.

Conclusions

The results of the present set of studies suggest that dissonance-induced attitude changes can be reduced or eliminated if people are exposed to incidental sources of positive or negative affect. The inconsistency-as-information approach outlined in the current research suggests that individual's rely heavily on feelings-based information when planning responses to salient inconsistencies. However, the picture painted of the person in a state of cognitive dissonance in the current set of studies is one of an individual who responds quickly and efficiently to experiential information and is extremely flexible in how they respond to any salient inconsistencies in their thoughts. The present studies indicate that people can respond to inconsistencies in 3 distinct ways: directly by confronting the discrepancy and altering the relations; indirectly by reducing the experience of discomfort that resulted from the cognitive dissonance; or indirectly by reinterpreting the meaning and sources of their current mood. Thus, in a broader sense, the responses obtained in the present set of studies support the idea that coping responses in the face of salient cognitive inconsistencies are extremely flexible and appear to be highly adaptive processes that individual's have developed to respond quickly to environmental constraints on their behavior.

Footnotes

[1] The contrast weights for the pilot study were 1, .5, -1.5 for the happy, neutral and sad mood inductions, respectively. These weights correspond to a pattern of effects in which the happy mood participants report the greatest amount of positive affect, sad mood participants report, and neutral mood participants report an intermediate level of positive feelings.

[2] A total of 88 participants took part in the study, but 12 participants' data were deleted because they either refused to generate counterattitudinal arguments or they did not follow the instructions for the tasks (e.g., generated both counterattitudinal and pro-attitudinal arguments).

[3] The contrast weights for the affect-as-information predictions were -1, -1, 5, 5, -1, -1, for the high-choice happy/self-relevant, happy/other-relevant, neutral/self-relevant, neutral/other-relevant, sad/self-relevant, and sad/other-relevant conditions, respectively. The contrast weights were -1, -1, -1, -1, -1, -1, for the corresponding low choice conditions. These weights correspond to a pattern of effects where attitude change is reduced to baseline by exposure to both happy and sad mood inductions, but not neutral tasks, regardless of the self-relevance of the task.

[4] A total of 105 participants took part in the study, but 8 participants' data were deleted because they either refused to generate counterattitudinal arguments or they did not follow the instructions for the tasks (e.g., generated both counterattitudinal and pro-attitudinal arguments). These data were replaced as the study was conducted in order to ensure adequate numbers of participants per experimental condition.

[5] The contrast weights were +3 and -2 for the high and low choice immediate conditions, respectively, and -2, -2, +3 for the corresponding happy/self-relevant, happy/other-relevant, and neutral delayed mood induction conditions.

[6] A total of 127 participants took part in the study, but 6 participants' data were deleted because they either refused to generate counterattitudinal arguments or they did not follow the instructions for the tasks (e.g., generated both counterattitudinal and pro-attitudinal arguments). These data were replaced as the study was conducted in order to ensure adequate numbers of participants per experimental condition.

[7] The contrast weights were +4 and -2 for the high and low choice immediate conditions, respectively, and -2, -2, -2, +4 for the corresponding happy/self-relevant, happy/other-relevant, sad, and neutral delayed mood induction conditions.

[8] The contrast weights were -1, -1, -1, and +3 for the corresponding happy/self-relevant, happy/other-relevant, neutral and sad mood induction conditions.

[9] A total of 68 participants took part in the study but 7 participants' data were deleted because they either refused to generate counterattitudinal arguments or they did not follow the instructions for the tasks (e.g., generated both counterattitudinal and pro-attitudinal arguments). These data were replaced as the study was conducted in order to ensure adequate numbers of participants per experimental condition.

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Appendix A

Pilot Study Script

Experimenter: Hi, are you here for STEEL 26? Then please come this way and have a seat at the desk. **(Once seated**) My name is ______________________. Today I'll be conducting an experiment that examines students' life experiences and their ability to recall and describe specific types of events.

In front of you should be a consent form titled "Life Experiences Inventory" task. It provides you with a little bit more information about what I'll be doing here today. Could you please take a minute to read this over and then sign it in the spaced that is provided? I'll collect it from you when you're done.

When Consent Form is Complete and Collected: Before we begin, I'd like to give you a little bit more information about what I'll be doing here today. I'm working with Dr. Denison and I'm collecting data to help create a life experiences inventory that can be used in future research. The reason that we're doing this is because similar types of inventories have been developed with other populations but there has yet to be one created specifically for a student sample. To do this, I'm asking people to write down various life experiences that they have had over the past 5 years.

I'm interested in literally hundreds of different types of life experiences, but since it would be difficult to have people write about many different things, I'm randomly assigning people to write about just one particular type of experience. So to do this, you'll be asked to draw a slip of paper from this box **(Hold up the draw box)** representing one of 200 different events from this box. Once you've done this I'll get you to complete the appropriate life experiences inventory packet in the allotted 10 minutes. Could you please draw a slip of paper from this box and let me know what it says? **(Participant draws slip and reads the pre-assigned mood condition)** OK. Just give me a minute to find the correct life experiences inventory. **(Obtain indicated mood condition from the files in desk drawer and hand to participant)**

Before you begin writing, please take a minute to read over the instructions on the packet. Once you've done that you can complete the task. Again for this task, you will have 10 minutes. Please try to write for the entire time. You may begin the task now.

Time for 10 minutes: To finish this experiment, I need to get you to complete several measures that will assess issues related to the task that you just completed (Hand Out DV page). I'd like you to take several minutes to complete these questions. When responding to any question, please make sure that you carefully read over the instructions before you provide your response. When you are done, please put the questionnaires face down on the desk.

To Assess Suspicion: Before we move on, I need to ask you one more important thing. On the back of the packet you completed, the one marked "Development of a Life Experience Inventory," I would like you to write down what you think I was studying and give me any impressions that you have of the study. Again, please write down what you think I was studying and any impressions that you may have.

Mood Restoration Instructions: Now, in order to validate your responses to the initial Life Experiences task you were assigned, I'll need you to complete another, shorter Life Experiences Inventory. Again, please read the instructions carefully and then begin writing. (Hand out Life Experiences) You'll be given 5 minutes to complete this task. You can begin writing now.

Appendix B

Pilot Study Informed Consent Form

Development of a Life Experiences Inventory
Informed Consent Form

I, ____________________________ agree to participate in the study being conducted under the direction of Dr. D. Denison. The study involves the development of a life experiences inventory for a student population. I realize that I will be asked to write in detail about various life experiences that I have had. I know that my responses are totally anonymous and that my name cannot be associated with the data in any way (this consent form will be handled separately from the data). I realize that I am free to discontinue my participation at any time without penalty or loss of credit. I know that the entire study takes approximately 20 minutes to complete and that I will receive credit.

Signed ________________________________
Date ________________________________
Experimenter ________________________________

Appendix C

Mood Induction Instructions: Happy/Self-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 10 minutes to write down some of the events that have happened to you in the last few years that have made you feel *very, very good*. Focus on each good event and vividly recall what led up to each event. Relive each experience in your mind's eye. For each good event write about what led up to it and who was involved. Be sure to carefully describe the positive feelings that you were having at the time of each good event and be sure to try to relive these positive feelings as you write. Be sure to describe each good event in great detail and discuss as many positive thoughts and feelings related to each good event that you can. In detail, write a few paragraphs about some of these events that made you feel very good. As I said, try to relive the good events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Happy/Other-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 10 minutes to write about some of the leisure activities that you may have encountered in the last few years. Please think about the various movies or television programs you have seen, or some of the novels you have read, and try to think of a character in those stories, that in your opinion, experienced an event that made them feel *very, very good*. Focus on each good event and vividly recall what led up to each event in *that character's life*. For each good event write about what led up to it and who was involved. Be sure to carefully describe the positive feelings that the character was having at the time of each good event and be sure to try to recall these positive feelings as you write. Be sure to describe each good event in great detail and discuss as many positive thoughts and feelings related to each good event that you can. In detail, write a few paragraphs about some of the events that made that character feel very good. As I said, try to recall those good events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Neutral/Self-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 10 minutes to write down some of the day-to-day events that have happened to you in the last few days. Focus on each event and vividly recall what led up to each event. Relive each experience in your mind's eye. For each event write about what led up to it and who was involved. Be sure to carefully describe each event and be sure to try to relive these events as you write. Be sure to describe each event in great detail and discuss as many thoughts related to each event that you can. In detail, write a few paragraphs about some of these events that you have experienced in the last few days. As I said, try to relive those events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Neutral/Other-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 20 minutes to write about some of the leisure activities that you have experienced in the last few days. Please think about the various movies or television programs you have seen, or some of the novels you have read, and try to think of a character in those stories and the events they experienced. Focus on each event and vividly recall what led up to each event in that character's life. For each event write about what led up to it and who was involved. Be sure to try to recall these events as you write. Be sure to describe each event in great detail and discuss as many thoughts related to each event that you can. In detail, write a few paragraphs about some of the events in that character's life. As I said, try to recall those events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Sad/Self-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 10 minutes to write down some of the events that have happened to you in the last few years that have made you feel *very, very sad*. Focus on each sad event and vividly recall what led up to each event. Relive each experience in your mind's eye. For each sad event write about what led up to it and who was involved. Be sure to carefully describe the negative feelings that you were having at the time of each sad event and be sure to try to relive these negative feelings as you write. Be sure to describe each sad event in great detail and discuss as many negative thoughts and feelings related to each sad event that you can. In detail, write a few paragraphs about some of these events that made you feel very sad. As I said, try to relive the sad events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Sad/Other-Relevant Mood Induction

Development of a Life Experiences Inventory

One thing I'd like to ask you to do today is to provide me with some data that will help me develop a life experiences inventory that will eventually be used with university students. I've found in the past, when developing similar inventories for different populations, that it's best to have people focus on one type of life experience. This approach seems to result in more detailed and easily coded life experiences. Different people are being asked to recall different life experiences.

I'm looking for a detailed list of different kinds of events in different people's lives. So, different people are going to be asked to write about different kinds of experiences. I'm going to give you 10 minutes to write about some of the leisure activities that you have experienced in the last few years. Please think about the various movies or television programs you have seen or some of the novels you have read, and try to think of a character in those stories, that in your opinion, experienced an event that made them feel *very, very sad*. Focus on each sad event and vividly recall what led up to each event in *that character's life*. For each sad event write about what led up to it and who was involved. Be sure to carefully describe the negative feelings that the character was having at the time of each sad event and be sure to try to recall these negative feelings as you write. Be sure to describe each sad event in great detail and discuss as many negative thoughts and feelings related to each sad event that you can. In detail, write a few paragraphs about some of the events that made that character feel very sad. As I said, try to recall those sad events. You'll have 10 minutes--please try to use all of the time (but you don't need to use all of the pages). Begin now.

Appendix D

Pilot and Study 1 Mood Measure

In an attempt to validate the life experiences inventory, I need to get some more information from you. Please circle the appropriate number on each of the following scales that best describes your response.

1. I find the University of Alberta to be a good institution.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

2. I am content with my life as a whole.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

3. My family is supportive.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

4. Right now I feel very good.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

5. It was easy to recall the life experiences on the task I just completed.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

6. I find that I play different roles on different days throughout my life.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

7. I believe that developing a life experiences inventory is good.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

Appendix E

Pilot Debriefing

I'd like to take this opportunity to tell you a little more about what we were studying here today. The study's actually over now. I want to apologize for not being able to explain everything to you at the beginning of the session. Hopefully, you can understand that if I told you everything ahead of time it could have influenced the results. Now that the session is over, I can explain the details of the study to you. Please feel free to interrupt me at any time if you have any questions or concerns.

I am working with Dr. Sinclair in the Psychology department here at the U of A. Our interests are in studying mood and its effects on various psychological processes. In the study you just completed, I was pilot testing a new form of a mood induction that will be used in future research projects. Mood inductions are experimental procedures whereby affective states are changed or manipulated by having people focus on different types of feelings. For this mood induction I had you write about memories associated with various types of moods. I was looking at how recalling such memories might affect your current mood or feelings.

This study had two independent variables that were manipulated. Remember, independent variables are variables that are manipulated or changed. Mood was our first independent variable and it had three levels: happy, sad, or neutral. We changed your moods by having you writing about a memory associated with a mood and focusing on that mood. Self-relevance was our second independent variable and it had two levels: self-relevant and non self-relevant. Some of you were asked to recall moods that were part of your own experience and some of you recalled moods that were relevant to another person's life. Then we measured your mood. Mood was our dependent variable and it was assessed in the follow-up questionnaire you completed. Dependent variables are those measures that are expected to be changed or influenced by the independent variable manipulations.

I hope that you can understand that if I told you I was changing your moods at the beginning of the session you might have responded differently then if you weren't told this information. There would have been the possibility that some participants might react to independent variable manipulations based on the way they believe the experimenters expected them to respond. This is called the demand awareness effect and it can be a real problem in research because our results could reflect nothing having to do with the psychological processes that we are interested in studying, but could simply reflect demand awareness. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed. I really want to apologize for not telling you this ahead of time, but I hope that you understand why I wasn't able to do so.

In past research, Dr. Sinclair and others have found that this life-experiences technique is quite effective in bringing about temporary mood changes. However, most mood inductions are self-relevant: that is, they ask people to focus on events or experiences in their own lives. We want to develop a comparable non self-relevant or other-focused mood induction that can be used for our some future research. Therefore, to ensure that the self-relevant and other-relevant forms of the procedures have similar effects on people's moods, we expect that the self-relevant and non self-relevant life experiences inventories bring about similar levels of happy, sad, and neutral moods. Hence, focusing on happy experiences should evoke more positive moods than focusing on negative or neutral life experiences. The shorter life-experiences task you completed at the end of the study was actually a mood restoration procedure designed to make everyone feel happy before leaving the session.

We need to ask you one important thing before you leave. As we are planning on more data this term, we ask that you please do not let other people know what we were doing here today. We ask this because if people know what we are studying before they entered our study it could cause a number of problems with the data we collect. Hopefully, you can see how having people know our hypothesis in advance would lead to problems in the interpretation of our data. Does anyone have any questions about the study? If you have and concerns or think of anything later feel free to contact Dr. Sinclair. His number is at the bottom of the sheet you'll be taking with you. Also, don't forget to put your credit sheets in the box by the sign-up table downstairs and remember to take the debriefing sheet that was handed out earlier with you. The debriefing sheet contains information that you will be tested on for the research component of your introductory psych exam. Thank you again, for participating today.

Appendix F

Student Attitudes Pretest Questionnaire

Please Print: Name ____________________________ ID ______________________________

Sex (circle one): M F

Please indicate your attitudes toward each of the following issues by circling the appropriate number on each of the following scales.

1. Tuition fees at the University of Alberta should be increased substantially.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

2. The sale and consumption of alcohol on the University of Alberta campus should be banned.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

3. Condom machines should be installed in washrooms throughout the U of A campus

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

4. Classes at the University of Alberta should be sexually segregated.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

5. Class sizes at the U of A should be increased substantially.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

6. All students should pay a $25.00 parking fee.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

If you would like to take part in a follow-up study for additional credit and would prefer to be contacted by either phone or e-mail, please provide your contact information in the appropriate spaces below:

Phone________________________________ Email____

Appendix G

Study 1 Script

Experimenter: Hi, are you here for STEEL 26? OK, the please come this way and have a seat at the desk. My name is ______________________ and today I'll be conducting an experiment that consists of three different parts since I have you here for nearly an hour. That way I can maximize participant use. The studies you'll be completing examine how people's attitudes and past life experiences affect social perception.

In front of you should be a consent form titled "Attitudes, Experiences, and Social Perception" task. Could you please take a minute to read this over and then sign the consent form in the space provided? I'll collect it from you when you're done.

When the consent form is complete: OK, I'm going to begin by giving you a little bit of background information about what I'll be doing here today. I work with Dr. Johnson in the psychology department and I'm collecting data for an attitude activation task, a life experiences inventory, and a social perception task that is examining student's impressions of tuition increases. The reason I'm doing this is because Dr. Johnson is associated with a committee that is examining the anticipated tuition increases at the University of Alberta.

What the tuition increase committee has asked us to do is to help them collect information and opinions regarding both the positive and negative aspects of tuition increases. In order to obtain these opinions we've designed a three-part study involving an attitude activation task, a life experiences inventory, and a social perception task. In the attitude activation task, I want you to focus clearly on the issue of tuition increases and develop clear and cogent opinions on the issue. For the life experiences inventory, I'll have you complete a writing task that focuses on different types of events you have experienced in the past few years. Later, after a brief interval, I will have you complete a social perception task that will explore your opinions in more detail.

OK, I'm going to begin with the attitude activation task. The purpose of this part of the study is to develop a focus on the issue of tuition increases so that you can gain a clearer understanding of the issues involved in the debate and also so that you can better respond to questions about your own attitudes that I'll give you later during the social perception task. I do this because attitudes tend to become more clear and prominent during the course of a debate.

As I was saying earlier, the committee that is examining the tuition increases wanted to conduct a survey of undergraduate students so that the relevant issues could be clearly defined for an upcoming student debate. In the interest of fully understanding the relevant arguments on both sides of the issue, the committee has asked students to list arguments favoring only one side of the issue.

However, at this point in our data collection, as I'm sure you can clearly imagine, the committee has already received numerous arguments opposing tuition increases. As a result, they are now seeking arguments in favor of tuition increases. So for the next 10 minutes, what I would like you to do is to list the strongest, most forceful arguments supporting a substantial increase in tuition at the University of Alberta.

If High Choice condition…and while I would like to stress the voluntary nature of which side of the issue you decide to write on, I would also like to remind you that the committee is short of arguments in support of tuition increases and will need these type of arguments in order for the debate to be carried out. Once you complete this task, your arguments will be sent directly to the committee for evaluation.

If Low choice condition….in the past it has been shown that a good way of obtaining these type of arguments is to simply to ask people, no matter how they feel personally, to list arguments from a particular side of the issue. Therefore, I have assigned you to write strong, forceful arguments in support of tuition increases. Once you complete the task, your arguments will be sent directly to the committee for evaluation.

Final Instructions for Both Choice Conditions: Contained in the envelope on your desk you will find the materials required to complete the attitude activation task. As I said, you will have 10 minutes to complete this task. When you are done please place your arguments in the envelope so that we can forward them to the committee. When you open your packet, please ensure that you complete all of the materials in the order they are presented. You will have 10 minutes for this writing task. Please try to write for the entire time. When you are finished please place all of the materials in the envelope provided to you and I'll collect them from you. I'll leave the room during the time that you complete the task and return when the 10 minutes is up. You may begin the task now.

Leave the room and time the task for 10 minutes: OK, the attitude activation task is complete. Please ensure that your packet has been returned to the envelope provided.

Collect Materials from Participant, Place on Pile of Envelopes and then begin Mood Induction: Allright, I'll now move on to the life experiences inventory task. For this task, I'm trying to create a life experiences inventory that can be used in future research, but also I'm looking at how particular life experiences might influence the social perception task. To do this, I'm asking that people write down various life experiences that they have had over the past 5 years.

I'm interested in literally hundreds of different types of life experiences that you may have had, but since it would be difficult to have people write about many different things, I'm randomly assigning people to write about just one particular type of experience. So to do this, you'll be asked to draw a slip of paper from this box **(Hold up the draw box)** representing one of 200 different events from this box. Once you've done this I'll get you to complete the appropriate life experiences inventory packet in the allotted 10 minutes. Could you please draw a slip of paper from this box and let me know what it says? **(Participant draws slip and reads the pre-assigned mood condition)** OK. Just give me a minute to find the correct life experiences inventory. **(Obtain indicated mood condition from the files in desk drawer. After obtaining the packet, hand Life Experiences Inventory to participant)**

Please read over the instructions on the packet and complete the task. Again for this task you will have 10 minutes. Please write for the entire time.

Again, I will leave the room during the time you complete the task. You may begin the task writing now.

When 10 minutes has passed: To finish this experiment, I need to get you to complete several measures that will assess issues related to the tasks that you just completed. When you are done, please put the questionnaires face down on the desk. I'll leave the room for several minutes and return to collect your materials before we move on.

When Complete, Assess Suspicion: OK, before we move on, I need to ask you one more important thing. On the back of the packet you completed, the one marked "Development of a Life Experiences Inventory", I would like you to write down what you think I was studying and give me any impressions that you have of the study. Again, please write down what you think I was studying and any impressions that you may have.

Mood Restoration: Now, in order to validate your responses to the initial Life Experiences task you were assigned, I'll need you to complete another, shorter Life Experiences Inventory. Again, please read the instructions carefully and then begin writing. (Hand out Life Experiences) You'll be given 5 minutes to complete this task. You can begin writing now.

Appendix H

Studies 1-3 Informed Consent Form

Attitudes, Experiences, and Social Perception Task
Informed Consent Form

I, ____________________________ agree to participate in the study being conducted under the direction of Dr. C. Johnson. The study involves an attitude activation task, a life experiences inventory task, and a social perception task. For the attitude activation task, I realize that I will be asked to write in detail about my attitudes toward a particular student issue. For the life experiences task, I realize that I will be asked to write in detail about various life experiences that I have had. For the social perception task I will complete a questionnaire that explores my attitudes in more detail. I realize that further knowledge of the hypothesis at this time could bias the results of the study and that I will be completely debriefed upon completion of the experiment. I know that my responses are totally anonymous and that my name cannot be associated with the data in any way (this consent form will be handled separately from the data). I also realize that I am free to discontinue my participation at any time without penalty or loss of credit. I know that the entire study takes approximately 35 minutes to complete and that I will receive credit.

Signed________________________________

Date________________________________

Appendix I

Counterattitudinal Essay and Choice Manipulation

High Choice Condition

Essay Release Form

I realize what is involved in this task and that I am performing it of my own free will. The essay I will write will be sent to a committee on campus that is intending to make decisions on the issue based on arguments it received from myself and other students. I am aware that I may stop participating in this survey at any time without loss of participation credit.

Please indicate your agreement or disagreement with the following statement by circling a number on the scale below the statement:

I have freely chosen to write this essay advocating for tuition increases.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Signed______________________________

Date ______________________________

Essay Writing Task

The purpose of this study is to develop a focus on the issue of tuition increases so that you can gain a clearer understanding of the issues involved in the debate and so that you can better respond to questions about your own attitudes later during the social perception task. I do this because attitudes tend to become more prominent and clear during the course of a debate.

The committee that is considering implementing the tuition increases wanted to conduct a survey of first year students so that the relevant issues could be clearly defined for an upcoming student debate. In the interest of fully understanding the relevant arguments on both sides of the issue, the committee has asked students to list arguments favoring only one side of the issue.

While you are free to take either side of the issue, for the next 10 minutes, I would like you to list the *strongest, most forceful arguments supporting a substantial increase in tuition* at the University of Alberta. You'll have 10 minutes - please try to use all of the time (but you don't need to use all of the pages). Begin now.

Low Choice Condition

Essay Writing Task

The purpose of this study is to develop a focus on the issue of tuition increases so that you can gain a clearer understanding of the issues involved in the debate and so that you can better respond to questions about your own attitudes later during the social perception task. I do this because attitudes tend to become more prominent and clear during the course of a debate.

The committee that is considering implementing the tuition increases wanted to conduct a survey of first year students so that the relevant issues could be clearly defined for an upcoming student debate. In the interest of fully understanding the relevant arguments on both sides of the issue, the committee has asked students to list arguments favoring only one side of the issue.

So for the next 10 minutes, I would like you to list the *strongest, most forceful arguments supporting a substantial increase in tuition* at the University of Alberta. You'll have 10 minutes. Please try to use all of the time (but you don't need to use all of the pages). Begin now.

Appendix J

Post Essay Attitude Measure

Follow-Up Student Attitude Measure

In order to evaluate your essay, the committee that is considering the tuition increases would like to know your opinion toward the issue. Please indicate your attitude toward tuition increases by circling the appropriate number on the following scales.

1. Tuition fees at the University of Alberta should be increased substantially.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

2. I believe that increasing tuition fees would be:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

3. I believe the idea of increasing tuition fees is:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

4. I support the proposed tuition increases at the University of Alberta.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
strongly disagree														strongly agree

Gender (M or F) ________

Major Area of Study (e.g., Psychology, Business)______________________________

Appendix K

Choice Manipulation Check

Post-Essay Impressions

In order to assess your overall impressions of the essay-writing task, please indicate your attitudes toward the task by circling the appropriate number on each of the following scales.

1. How much choice did you feel you had in writing the essay *supporting* tuition increases?

1	2	3	4	5	6	7	8	9
no choice at all								a great deal of choice

2. I felt that I was free to decline writing the essay advocating for tuition increases.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

3. It was easy to list arguments advocating tuition increases.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

4. I enjoyed completing the attitude activation task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Appendix L

Study 1 Debriefing

OK, the study is actually over now and now I'd like to take this opportunity to tell you a little bit more about what we're studying. Hopefully, you can understand that if I told you everything ahead of time it could influence the results of the study. Now that the session is over, I can explain everything to you. Please feel free to interrupt if you have any questions or concerns.

I'm working with Dr. Sinclair in the Psychology department here at the U of A. Our interests are in what factors affect attitude and opinion change. In the study you just completed, I was looking at how the essay-writing task would affect your subsequent attitude toward the issue of tuition increases. In addition, I was looking at how a mood manipulation might moderate any changes observed in your attitudes. We were investigating the phenomena known as cognitive dissonance and attempting to understand the psychological processes involved in this type of attitude change.

Right now I need to clarify a few things. First, even though the U of A is currently considering a motion to increase tuition fees, we are not advising the university on this issue. Your essay will not be forwarded to any committee and the content of the essay will remain confidential. Hopefully you can understand that in order to understand the processes involved in cognitive dissonance, we needed to use an issue that was highly involving to most university students.

This study had 3 independent variables and various dependent variables. Remember, independent variables are variables that are manipulated or changed. The level of choice involved in writing the essay was our first independent variable and it had two levels: high choice and low choice. I manipulated the level of choice by varying instructions at the beginning of the essay-writing task. Presumably people who wrote the essay out of their own free choice would have cognitive dissonance aroused. The type of mood induced was our second independent variable and it had three levels: happy, sad, or neutral. So in the life experiences task, some of you were asked to recall happy events, some of you recalled sad events, and some of you recalled neutral events. Self-relevance of the mood induction was our final independent variable and it had two levels: self-relevant and other-relevant. In the life experiences task, some of you were asked to recall moods that were part of your own experience and some of you recalled moods that were relevant to another person's life. Your attitude towards tuition increases was our primary dependent variable and it was assessed in the student attitude question you completed at various times during the session. Remember, dependent variables are expected to be changed or influenced by the independent variable manipulations.

I hope that you can understand that if I told you I was changing your mood or varying the perceived level of choice of the essay task at the beginning of the session you might have responded differently than you did. There would have been the possibility that some participants might react to independent variable manipulations based on the way they believe the experimenters expected them to. This is called the demand awareness effect. This can be a real problem in research because our results could reflect nothing having to do with the psychological processes that we are interested in studying, but could simply reflect demand awareness. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed. I really want to apologize for not telling you this ahead of time, but I hope you understand why I wasn't able to do so.

In the past, many researchers have found people who write a counter-attitudinal essay out of their own free choice will subsequently alter their attitudes towards the target issue. This is what is known as cognitive dissonance. Dissonance theory proposes that when a person behaves in a manner contrary to a prior belief, a state of aversive tension or negative mood is aroused, as is the motivation to reduce this arousal. To reduce this unpleasant arousal, people will often alter their beliefs to align them with their behavior. Although many researchers have demonstrated this effect, the underlying mechanisms of dissonance-induced attitude change have yet to be resolved. In this experiment, we were hoping to demonstrate that attitude change evoked by cognitive dissonance can be eliminated by inducing happy moods in people following the essay-writing task. We also hypothesized that the effects of the mood inductions would be consistent across the self-relevant and non self-relevant tasks. To test these hypotheses, we had you complete the life experiences inventory, a commonly used mood induction procedure, immediately following the essay-writing task.

We need to ask you one important thing before you leave. As we'll be collecting more data this term and next term, we ask that you please do not let other people know what we were doing here today. We ask this because if people know what we are studying before they take part, it could cause problems with our data. I hope you can see how having people know our hypothesis in advance would lead to problems in the interpretation of our data. Do you have any questions? If you have and concerns or think of anything later feel free to contact Dr. Sinclair. His number is at the bottom of the sheet you'll be taking with you. In addition, I would like to inform you that if you are concerned about anything that occurred during the course of this experiment, you are free to withdraw your data at this time and will not be included in the final results of this study. Also, don't forget to put your credit sheets in the box by the sign-up table downstairs and remember to take the debriefing sheet that was handed out earlier with you. The debriefing sheet contains information that you will be tested on for the research component of your introductory psych exam. Thank you again for participating today.

Appendix M

Studies 1-4 Written Debriefing Form

STANDARD DEBRIEFING

READ THIS SECTION NOW

I'd like to provide you with more information about our research. One of the reasons that we conduct research in the area of attitude and opinion change is to understand how we form opinions and what might lead us to alter these beliefs. A great deal of research has found that people who write counterattitudinal essays (i.e., an essay supporting tuition increases) out of their own free choice will subsequently alter their attitudes toward the target issue. This psychological phenomenon is what is known as cognitive dissonance. This theory proposes that when a person behaves in a manner contrary to a prior belief, a state of aversive tension or negative mood is aroused, as is the motivation to reduce this unpleasantness. Although many researchers have demonstrated this effect, the underlying mechanisms explaining why dissonance-induced attitude change occurs have yet to be fully explained. In this experiment we were examining how changes or expected changes in your mood might affect this type of attitude change. We believe that altering one's mood after a dissonant act can alter subsequently reported attitudes toward the target issue (i.e., tuition increases). We are attempting to understand the conditions under which happy moods might lead to improvements in our day-to-day judgments. We are also attempting to gain a better understanding of the motivation underlying typical dissonance effects (e.g., do people prefer to reduce the discomfort associated with dissonance directly via attitude change or indirectly by improving their mood?)

Our sad mood induction isn't terribly potent (that is, it doesn't usually result in feelings of extreme sadness). If you've found yourself feeling quite sad, down, or stressed out over the past few weeks of your life, this might be the normal kind of feelings that we experience during stressful times in our lives -- indeed, while some of our time at university can be quite fun, there are other aspects that can make any of us feel down -- this is normal. But sometimes, even these normal feelings can be troublesome in our lives. Sometimes, they interfere with our ability to study or work or focus on getting things dome. This is sometimes a warning sign that things are not going well in our lives. If you've been feeling this way, or if you know someone who has been feeling this way, you might consider some options that involve talking with people about problems -- often just doing this helps get over these feelings. Listed below are phone numbers for various agencies located near campus that provide these kinds of services free of charge: 1) Student Counselling Services -- . 2) Health Services -- ; 3) Student Help -- 4) Distress Line -- ; 5) University Student Advisor (more for academic problems) -- 6) University Hospital Walk-in Clinic -- 7) Sexual Assault Centre -- ; 8) Academic Support Centre (for study skills problems) --

READ THIS SECTION LATER

We manipulate independent variables in order to assess how these variables cause changes in other variables called dependent variables. So independent variables are the theoretical causes and dependent variables, the variables that we measure, are the effects or outcomes of our independent variables. Sometimes we do research in which we do not manipulate variables, but instead measure predictor variables and criterion variables. For example, we could look at gender (Male versus Female) as a predictor of verbal ability scores. This type of study is correlational in nature and because we did not manipulate any variables, we could not make any cause and effect inferences. That is, we couldn't say that gender causes differences in verbal ability because we cannot manipulate gender. As you're likely aware, there are a lot of differences between men and women, like how men versus women are socialized, that could provide an alternative explanation for any relationship between gender and verbal ability. In the present study, because we manipulated our independent variables and used random assignment, we can make cause and effect inferences. Random assignment to conditions means that each of you had an equal probability of receiving any of the levels of each of our independent variables. Because of this, we know that the different groups of people who receive the various levels of our independent variables are about the same before our manipulations; that is all groups contain tall people and short people, smart and not so smart people, people who have had a lot of coffee and people who haven't had much coffee, etc.--so height, intelligence, and amount of coffee cannot be what cause any differences on our dependent variables. The only difference between the groups is the levels of our independent variable, so our independent variable has to be the cause of any change that we find in our dependent variable. So, if the groups are the same before our manipulations, then any differences that we find on our dependent variables must be due to our independent variables causing some effect.

Part of the scientific process involves building on previous research in order to attempt to clarify issues and lead to new discoveries. The findings in the present work will lead to modifications of theory and other testable hypotheses which, in turn, should lead to other hypotheses, and so on. This is how science builds on previous work and is known as the functional approach to theory development. We often identify issues raised in journals, point out problems, extend the issues, or modify theories in order to advance our understanding. As you can see, it is very important to have people participate in our research so that the scientific endeavor can progress. Hopefully, your participation not only helps to advance science, but leads you to understand how we go about conducting research so that we can address important psychological issues.

One of the last things that I want to discuss with you is why, in the beginning, I didn't explain exactly what our hypotheses were. I guess you can see if I told you what we were studying, you might have felt a lot of pressure or demand to react one way or the other. You might have felt pressured to react in the way you thought we expected you to on the basis of our theory rather than reacting the way you normally would. The possibility that some participants might react to independent variable manipulations based on what they believe the experimenters expect is called the demand awareness effect. This can be a problem in research because our results could reflect nothing having to do with the psychological processes that we're interested in studying, but could simply reflect demand awareness. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed. So, I hope you can see how having people know our hypotheses in advance of responding would lead to problems in the interpretation of our data.

If you have any questions about the study or just general questions related to the issues we addressed here, contact the primary researcher at the following phone number: Dr. Robert C. Sinclair: Sean Moore:

Appendix N

Studies 2-3 Script

Hi, are you here for STEEL 26? OK, then please come this way and have a seat at the desk. My name is ______________________ and today I'm going to be conducting an experiment that consists of three different parts since I have you here for nearly an hour. That way I can maximize participant use. The studies you'll be completing examine how people's attitudes and life experiences affect social perception.

In front of you should be a consent form titled "Attitudes, Experiences, & Social Perception" task. Could you please take a minute to read the form and then sign it in the space provided on the sheet? I'll collect it from you when you're done.

When the consent form is completed and collected I'm going to begin by giving you a little bit of background information about what I'll be doing today. I'm working with Dr. Johnson and I'm collecting data for an attitude activation task examining students' impressions of tuition increases, along with data for several other tasks that are examining students' attitudes, life experiences, and social perceptions in more detail. Dr. Johnson is a member of the committee that is examining issues related to tuition increases at the University of Alberta. The tuition increase committee has asked us to help them collect information and opinions regarding both the positive and negative aspects of tuition increases. In order to obtain these data we've designed this three-part study involving the attitude activation, a life experiences task, and a social perception task.

In the attitude activation task, I want you to focus on the issue of tuition increases and develop clear and cogent opinions on the topic. For the life experiences inventory, I'll have you complete a writing task that focuses on different types of events that you've experienced in the past few years. Later after a brief interval, I'll have you complete the social perception task that will examine your opinions in more detail.

OK, I'll begin with the attitude activation task. The purpose of this study is to develop a focus on the issue of tuition increases so you can gain a clearer understanding of the issues involved in the debate and so that you better respond to the questions that I'll give you later in the study. I do this because attitudes tend to become more clear and prominent during the course of a debate.

As I was saying, the committee that is examining the issue of tuition increases has asked us to help them conduct a survey of undergraduate students so that the relevant issue could be clearly defined at an upcoming student debate. In the interest of understanding the arguments on both sides of the issue, the committee has asked students completing the task to list arguments favoring only one side of the issue.

However, since the committee has received numerous arguments opposing tuition increases, as I'm sure you could clearly imagine, they are now seeking arguments in favor of tuition increases. So what I would like you to do for the next 10 minutes is to focus on the issue of tuition increases and develop arguments in favor of tuition increases at the University of Alberta.

IF LOW CHOICE: ...in the past it has been shown that a good way of developing arguments is by simply asking people, no matter how they feel personally, to list arguments from a particular side of the issue. As I'm sure you can imagine, most students want to write arguments opposing tuition increases. However, I can't let you do that because the committee is short of these types of arguments and needs arguments in favor of tuition increases to proceed. Therefore, for the next 10 minutes, I ask that you write strong arguments in favor of tuition increases.

IF HIGH CHOICE: ...in the past it has been shown that a good way of developing arguments is by simply asking people, no matter how they feel personally, to list arguments from a particular side of the issue. As I'm sure you can imagine, most students want to write arguments opposing tuition increases:

And I would like to stress the voluntary nature of which side of the issue you choose to write on, it would be more helpful to us at this point if you chose to write arguments in favor of tuition increases because the committee is short of these type of arguments and needs them to proceed.

FOR BOTH CHOICE CONDITIONS: Contained in the envelope on the desk, you'll find all the materials required to complete this task. I ask that you carefully read over the instructions before you begin writing. As I said, you'll have 10 minutes to complete the task. When the 10 minutes is complete, I ask that you return your materials to the envelope provided. I'll leave the room while you complete and return to collect your materials when the 10 minutes is up. Once collected your materials will be sent to the committee for evaluation. You may begin the task now.

UPON RETURN: OK, the attitude activation task is complete. Please return your materials to the envelope and I'll collect them from you. **(Collect packet and place in "completed" pile)**

IF IMMEDIATE CONDITION: To finish this part of the experiment, I need to get you to complete several measures that will assess issues related to the task you just completed. Please take a few minutes to quickly complete these questions. I ask that you go through this packet in the order it's presented and that you read the instructions before responding to a question. I'll give you a couple minutes to complete the task. When you've finished, I'll collect them from you and include them with your essay. **(Leave room and return in 3 minutes)**.

LIFE EXPERIENCES TASK: All right, I'll move on to the life experiences inventory. For this task, I'm trying to create a life experiences inventory that can be used in future research, but I'm also interested in how life experiences influence the social perception task. I'm asking people to write down various life experiences that they've had over the past 5 years. I'm interested in literally hundreds of types of experiences that you might have. However, since it would be difficult to have you write down as many experiences as you could think of, I'm randomly assigning people to write about just one particular type of experience. To do this, I'll have you draw a slip of paper representing 1 of over 200 events from this box. Then I'll obtain the correct inventory packet and have you complete the packet in the allotted 10 minutes. Please draw a slip of paper from this box and tell me what it says. Could you please draw one slip of paper from this box? **(Participant draws slip)** What does the slip say? OK, please give me a minute to find the correct inventory. **(Take slip from participant and look in file drawer. Retrieve and place on desk)**.

OK, Here's the correct life experiences inventory. I ask that you carefully read over the instructions before you begin writing. As I said, you'll have 10 minutes for the task. Please try to write for the entire time. I'll leave the room while you complete the task and return when the 10 minutes is up. I'll collect the materials from you at that time and place them with your essay. Any questions? OK, You may begin writing now.

AFTER 10 MINUTES: The time for this task is up. Please finish what you're writing and we'll move on to the next task. **(Hand DV Packet – Remember that it's different for immediate and delayed conditions)** To finish this part of the experiment, I need you to complete several measures that will assess issues related to the tasks that you just completed. Please go through this packet in the order the pages are presented and be sure to carefully read over the instructions before responding to any questions. The task will take about 3 minutes. I'll leave the room while you're completing it and return when the 3 minutes is up to collect your materials. You may begin now.

Time 3 minutes; Return to room and wait for participant to finish if necessary. Suspicion probe: To finish the experiment I'd like you to respond to several questions that deal with your overall impressions of the study. Please read these questions over and then respond on the page. You can use the back of the page if necessary.

Mood restoration: Now in order to validate your responses to the initial life experiences task, I need to get you to complete an additional, shorter inventory. Please take a minute to read over the instructions on the following task and then begin writing. You'll have 5 minutes. I'll return to collect your materials from you when the 5 minutes has passed.

Appendix O

Emotional Reactions Questionnaire

Below are words that can describe different types of feeling. For each word, please indicate how much it describes how you are feeling right now by circling a number on the scale. "1" means "does not apply at all" and "7" means applies very much" to how you are feeling right now. Don't spend much time thinking about each word, just give a quick, gut-level response.

	Does Not Apply At All						Applies Very Much
1. content	1	2	3	4	5	6	7
2. uncomfortable	1	2	3	4	5	6	7
3. angry at myself	1	2	3	4	5	6	7
4. shame	1	2	3	4	5	6	7
5. uneasy	1	2	3	4	5	6	7
6. good	1	2	3	4	5	6	7
7. friendly	1	2	3	4	5	6	7
8. negative	1	2	3	4	5	6	7
9. energetic	1	2	3	4	5	6	7
10. embarrassed	1	2	3	4	5	6	7
11. bothered	1	2	3	4	5	6	7
12. anxious	1	2	3	4	5	6	7
13. happy	1	2	3	4	5	6	7
14. dissatisfied with myself	1	2	3	4	5	6	7
15. optimistic	1	2	3	4	5	6	7

Appendix P

Rosenberg (1966) Self-Esteem Inventory

Listed below is a list of statements dealing with your *general feelings about yourself*. Please indicate the extent to which you agree or disagree with the statements by circling the appropriate number on the scale below each item.

1. I feel that I'm a person of worth, at least on an equal plane with others.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

2. I feel that I have a number of good qualities.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

3. All in all, I am inclined to feel that I am a failure.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

4. I am able to do things as well as most other people.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

5. I feel I do not have much to be proud of.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

6. I take a positive attitude toward myself.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

7. On the whole, I am satisfied with myself.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

8. I wish I could have more respect for myself.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

9. I certainly feel useless at times.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

10. At times I think I am no good at all.

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

Appendix Q

Life Experiences Follow-Up Questionnaire

In order to validate the life experiences inventory, I need to get some more information from you. Please circle the appropriate number on each of the following scales that best describes your response.

1. The experiences that I recalled were important to me.

1	2	3	4	5	6	7
strongly disagree						strongly agree

2. The experiences that I recalled were about something that occurred in my life.

1	2	3	4	5	6	7
strongly disagree						strongly agree

3. The experiences I recalled were about something that I valued.

1	2	3	4	5	6	7
strongly disagree						strongly agree

4. It was easy to recall the life experiences on the task I just completed.

1	2	3	4	5	6	7
strongly disagree						strongly agree

5. The life experiences I recalled were of a pleasant nature.

1	2	3	4	5	6	7
strongly disagree						strongly agree

6. Recalling these life experiences makes me feel good.

1	2	3	4	5	6	7
strongly disagree						strongly agree

Appendix R

Studies 2-3 Debriefing

OK, the study is actually over now and now I'd like to take this opportunity to tell you a little bit more about what we're studying. Hopefully, you can understand that if I told you everything ahead of time it could influence the results of the study. Now that the session is over, I can explain everything to you. Please feel free to interrupt if you have any questions or concerns.

I'm working with Dr. Enzle and a number of other colleagues in the psychology department here at the U of A. Our interests are in what factors affect attitude and opinion change. In the study you just completed, I was looking at how the essay-writing task would affect your subsequent attitude toward the issue of tuition increases. In addition, I was looking at how a mood manipulation might mediate any changes in your attitudes. We were investigating the phenomena known as cognitive dissonance and attempting to understand the psychological processes involved in this type of attitude change.

Right now I need to clarify a few things. First, we are not advising the university on this issue regarding tuition increases. Also, your essay will not be forwarded to any committee and the content of the essay will remain confidential. Hopefully you can understand that in order to understand the processes involved in cognitive dissonance, we needed to use an issue that was highly involving to most university students.

This study had 3 independent variables and various dependent variables. Remember, independent variables are variables that are manipulated or changed. The level of choice involved in writing the essay was our first independent variable and it had two levels: high choice and low choice. I manipulated the level of choice by varying instructions at the beginning of the essay-writing task. Presumably people who wrote the essay out of their own free choice would have dissonance aroused. The type of mood induced was our second independent variable and it had two levels: happy or neutral. To manipulate mood, in the life experiences task some of you were asked to recall happy events, some of you recalled sad events, and some of you recalled neutral events. Self-relevance of the mood induction was our third independent variable and it had two levels: self-relevant and non self-relevant. In the life experiences task, some of you were asked to recall moods that were part of your own experience and some of you recalled moods that were relevant to another person's life. Your attitude towards tuition increases was our dependent variable and it was assessed in the student attitude question you completed at various times during the session. Remember, dependent variables are expected to be changed or influenced by the independent variable manipulations.

I hope that you can understand that if I told you I was changing your mood at the beginning of the session you might have responded differently than you did. There would have been the possibility that some participants might react to independent variable manipulations based on the way they believe the experimenters expected them to. This is called the demand awareness effect. This can be a real problem in research because our results could reflect nothing having to do with the psychological processes that we are interested in studying, but could simply reflect demand awareness. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed.

In the past, many researchers have found people who write a counter-attitudinal essay out of their own free choice will subsequently alter their attitudes towards the target issue. This is what is known as cognitive dissonance. Dissonance theory proposes that when a person behaves in a manner contrary to a prior belief, a state of aversive tension or negative mood is aroused, as is the motivation to reduce this arousal. To reduce this unpleasant arousal, people will often alter their beliefs to align them with their behavior.

Although many researchers have demonstrated this effect, the underlying mechanisms of dissonance-induced attitude change have yet to be resolved. In this experiment, we were hoping to demonstrate that attitude change evoked by cognitive dissonance can be eliminated by inducing happy moods in people following the essay-writing task. We also hypothesized that the effects of the mood inductions would be consistent across the self-relevant and non self-relevant tasks. To test these hypotheses, we had you complete the life experiences inventory, a commonly used mood induction procedure, immediately following the essay-writing task.

We need to ask you one important thing before you leave. Please do not let other people know what we were doing here today. This is because we'll be collecting more data this term and if people know what we are studying, it could really cause problems with our data. I hope you can see how having people know our hypothesis in advance would lead to problems in the interpretation of our data. Do you have any questions? If you have and concerns or think of anything later feel free to contact Sean Moore. His number is at the bottom of the sheet you'll be taking with you. In addition, I would like to inform you that if you are concerned about anything that occurred during the course of this experiment, you are free to withdraw your data at this time and will not be included in the final results of this study. Also, please remember to hold on to the debriefing sheet. It contains information that you will be tested on for the research component of your introductory psych exam. Thank you again for participating today.

Appendix S

Task Attributions Measure

Task Evaluations

Please circle the appropriate number on each of the following scales that best describes your response.

1. I found the attitude activation task to be an interesting task.

1 2 3 4 5 6 7
strongly disagree — strongly agree

2. I found the life experiences inventory to be an interesting task.

1 2 3 4 5 6 7
strongly disagree — strongly agree

3. The attitude activation task is the main source of my current mood (i.e., my feelings right now, at this moment)

1 2 3 4 5 6 7
strongly disagree — strongly agree

4. The life experiences inventory is the main source of my current mood (i.e., my feelings right now, at this moment).

1 2 3 4 5 6 7
strongly disagree — strongly agree

Appendix T

Trivialization Measures

1. How important is the issue of tuition increases in the grand scheme of things?

1	2	3	4	5	6	7	8	9
not at all important								extremely important

2. How important is it that you express negative views about tuition increases?

1	2	3	4	5	6	7	8	9
not at all important								extremely important

3. In the grand scheme of things, how significant is it to write something positive about tuition increases?

1	2	3	4	5	6	7	8	9
not at all significant								extremely significant

Appendix U

Study 4 Script

Hi, are you here for STEEL 26? All right, please come this way and have a seat at the desk. My name is _____________. Today I'm going to be conducting an experiment that consists of several different parts. The studies you'll be completing examine student's attitudes, life experiences, social perception.

In front of you should be a consent form titled "Attitudes, Experiences, & Social Perception" task. Could you please take a minute to read the form and then sign it in the space provided on the sheet? I'll collect it from you when you're done.

When the consent form is complete and collected: I'm going to begin by giving you a little bit of background information about what I'll be doing today. I'm working with Dr. Johnson and I'm collecting data for an attitude activation task examining students' impressions of tuition increases, along with data for several other tasks that are examining students' attitudes, life experiences, and social perceptions in more detail. Dr. Johnson is a member of the committee that is examining issues related to tuition increases at the University of Alberta. The tuition increase committee has asked us to help them collect information and opinions regarding both the positive and negative aspects of tuition increases. In order to obtain these data we've designed a study consisting of several different parts including an attitude activation task as well as several other tasks designed to explore your attitudes and life experiences in more detail.

In the attitude activation task, I want you to focus on the issue of tuition increases and develop clear and cogent opinions on the topic. Later after a brief interval, I'll ask you to complete several other tasks that will explore some topics in a bit more detail.

OK, I'll begin with the attitude activation task. The purpose of this study is to develop a focus on the issue of tuition increases so you can gain a clearer understanding of the issues involved in the debate and so that you better respond to the questions that I'll give you later in the study. I do this because attitudes tend to become more clear and prominent during the course of a debate.

As I was saying, the committee that is examining the issue of tuition increases has asked us to help them conduct a survey of undergraduate students so that the relevant issue could be clearly defined at an upcoming student debate. In the interest of understanding the arguments on both sides of the issue, the committee has asked students completing the task to list arguments favoring only one side of the issue.

However, since the committee has received numerous arguments opposing tuition increases, as I'm sure you could clearly imagine, they are now seeking arguments in favor of tuition increases. So what I would like you to do for the next 10 minutes is to focus on the issue of tuition increases and develop strong, forceful arguments in favor of tuition increases at the University of Alberta.

IF LOW CHOICE: In the past it has been shown that a good way of developing arguments is by simply asking people, no matter how they feel personally, to list arguments from a particular side of the issue. As I'm sure you can imagine, most students want to write arguments opposing tuition increases. However, I can't let you do that because the committee is short of these types of arguments and needs arguments in favor of tuition increases to proceed. Therefore, for the next 10 minutes, I ask that you write strong arguments in favor of tuition increases.

IF HIGH CHOICE: In the past it has been shown that a good way of developing arguments is by simply asking people, no matter how they feel personally, to list arguments from a particular side of the issue. As I'm sure you can imagine, most students want to write arguments opposing tuition increases: And I would like to stress the voluntary nature of which side of the issue you choose to write on, it would be more helpful to us at this point if you chose to write arguments in favor of tuition increases because the committee is short of these type of arguments and needs them to proceed.

Contained in the envelope on the desk, you'll find all the materials required to complete this task. I ask that you carefully read over the instructions before you begin writing. As I said, you'll have 10 minutes to complete the task. When the 10 minutes is complete, I ask that you return your materials to the envelope provided. I'll leave the room while you complete and return to collect your materials when the 10 minutes is up. Once collected your materials will be sent to the committee for evaluation. You may begin the task now.

After 10 Minutes: OK, the attitude activation task is complete. Please return your materials to the envelope and I'll collect them from you. (Collect packet and place in completed box).

IF IMMEDIATE CONDITION: To finish this part of the experiment, I need to get you to complete several measures that will assess issues related to the task you just completed. Please take a few minutes to quickly complete these questions. I ask that you go through this packet in the order it's presented and that you read the instructions before responding to a question. I'll give you a couple minutes to complete the task. When you're done, I'll collect them from you and include them with your essay. **(Leave room and return in 3 minutes)**

TASK CHOICE: All right, we're now going to move on to the attitudes and life experiences part of the study. For this part of the study, I'm interested in collecting detailed data examining students' attitudes, life experiences, and social perceptions. To obtain these data, we've designed several different tasks that will explore these topics in more detail. For the tasks, you'll be asked to respond to questions that examine various topics such as your attitudes to important student issues or give descriptions of some of your life experiences.

Since I'm just beginning to examine these topics, I'm now collecting data to determine which of these tasks will be most useful to us in our future research. The purpose of the next part of the study is to develop an understanding of the themes underlying the issues that we've chosen to study. So for this next part of the study, I'm going to give you descriptions of some of the experimental tasks that we've designed and I'm going to get you to rate each of the tasks in terms of their interest to you, personally, in completing them. I ask that you read over the descriptions of each task one at a time and then rate the task using the scales provided. Also, please be sure to carefully consider your responses, as we will use this information to determine what tasks you will complete in the rest of today's session.

Here is the packet containing the task descriptions. Please read over the instructions on the first page. Once you've read over the instructions, turn to the next page and carefully read over the first task description. Then rate the description using the scales provided to you. Once you've completed this first set of ratings, turn to the next page, read the description, and rate the second task. Continue doing this for each of the task descriptions. I'll give you 5 minutes to complete this task. Once you're finished, I'll collect the packet and determine which task you'll complete next. I'll leave the room while you complete the ratings and return when the 5 minutes is up. You may begin now.

IF DELAYED ATTITUDES: Before I move on, I need you to complete several measures that will assess issues related to the tasks you've completed so far. Please take a few minutes to quickly complete these questions. I ask that you go through this packet in the order it's presented and that you read the instructions before responding to any questions. I'll give you a couple minutes to complete the task. Leave room and return in 3 minutes

Appendix V

Study 4 Informed Consent Form

Attitudes, Experiences, and Social Perception Task
Informed Consent Form

I, ___________________________ agree to participate in the study being conducted under the direction of Dr. C. Johnson. The study involves a variety of experimental tasks. For the attitude activation task, I realize that I will be asked to write in detail about my attitudes toward a particular student issue. Later, I will read descriptions of several experimental tasks and then rate these tasks. Based on these ratings, I will then complete several questionnaires and writing tasks designed to explore my life experiences and social perceptions. I realize that further knowledge of the hypothesis at this time could bias the results of the study and that I will be completely debriefed upon completion of the experiment. I know that my responses are totally anonymous and that my name cannot be associated with the data in any way (this consent form will be handled separately from the data). I also realize that I am free to discontinue my participation at any time without penalty or loss of credit. I know that the entire study takes approximately 40 minutes to complete and that I will receive credit.

Signed ________________________________

Date ________________________________

Appendix W

Task Descriptions, Ratings, & Rankings

Description of Experimental Tasks

The purpose of this study is to examine students' attitudes and life experiences. In order to obtain these data we've designed several different tasks that explore these topics in more detail. For these tasks you will be asked to respond to questions that examine various topics such as your attitudes toward important student issues and some of your own personal life experiences. However, we need to determine which of these tasks will best answer our research questions. So we are now collecting pilot data to examine the overall desirability and level of interest in each of our experimental tasks. On the following pages you will read descriptions of 4 experimental tasks. After you read the description of each task, we would like you to rate the task in terms of your overall interest in completing the task. ***Based on these initial evaluations we will then determine which of the tasks you will complete in today's session.***

Please carefully read over the description of the experimental task and then rate it on the scales provided to you. Proceed through the packet at your own pace and complete it in the order it is presented to you. Once you have turned a page, please do not turn back to change any of your answers. Please turn to page 2 and begin reading over the description of the first task. Then continue on in the packet at your own pace.

Positive Life Events Recall Task

For this task, you will be asked to recall different types of pleasant events that you have experienced in the past few years. The purpose of this task is to examine students' life experiences and hopefully to create a life experiences inventory that can be used in future research. For this task, you will have several minutes to list some of the events that have happened to you in the last few years that have made you feel *very, very good.* You will be asked to carefully describe the positive feelings that you were having at the time of each good event and attempt to relive these positive feelings as you write.

Please indicate your attitudes toward the experimental task you just read about by circling the appropriate number on the scale below each item.

1. I will enjoy completing this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

2. I believe that this task will have some desirable consequences.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

3. I believe that I could learn a lot from this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

4. I would prefer to complete this task next in the study.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

5. In the grand scheme of things, the topic of this task is unimportant to me.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Student Tuition Increases Opinion Task

For this task, you will be asked to respond to questions that explore your attitudes and opinions toward the issue of tuition increases at the University of Alberta. The purpose of this task is to gain an understanding of students' opinions about the issue of tuition increases and identify important themes in these opinions. We would like to gain a more detailed understanding of your own personal opinion about the issue of tuition increases, including details such as your personal involvement with the issue and the beliefs you have about the issue. You will be given several minutes to complete a number of questions that are designed to assess your attitudes in great detail.

1. I will enjoy completing this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

2. I believe that this task will have some desirable consequences.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

3. I believe that I could learn a lot from this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

4. I would prefer to complete this task next in the study.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

5. In the grand scheme of things, the topic of this task is unimportant to me.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Positive Leisure Experiences Recall Task

For this task, you will be asked to recall the details of different types of leisure activities that you may have encountered in the past few years. The purpose of this task is to examine students' life experiences and hopefully to create a leisure experiences inventory that can be used for future research. For this task you will have several minutes to think of the various movies or television programs you have seen, or some of the novels you have read, and try to think of a character in those stories, that in your opinion, experienced an event that made them feel *very, very good*. You will be asked to carefully describe the positive feelings that the character was having at the time of each good event and be sure to try to recall these positive feelings as you write.

1. I will enjoy completing this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

2. I believe that this task will have some desirable consequences.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

3. I believe that I could learn a lot from this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

4. I would prefer to complete this task next in the study.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

5. In the grand scheme of things, the topic of this task is unimportant to me.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Daily Life Events Recall Task

For this task, you will be asked to recall different types of day-to-day events that you have experienced in the past few days. The purpose of this task is to examine students' life events and hopefully to create a life event inventory that can be used in future research. For this task, you will have several minutes to list some of the day-to-day events that have happened to you in the last few days. You will be asked to describe each event in great detail and discuss as many thoughts related to that event as you can recall.

1. I will enjoy completing this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

2. I believe that this task will have some desirable consequences.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

3. I believe that I could learn a lot from this task.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

4. I would prefer to complete this task next in the study.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

5. In the grand scheme of things, the topic of this task is unimportant to me.

1	2	3	4	5	6	7	8	9
strongly disagree								strongly agree

Now to gain a better understanding of your preferences, please rank the 4 experimental tasks in terms of their overall desirability (i.e., which task would you prefer to complete) by assigning each task a number from 1 to 4 in the space beside each task name. For example, the most desirable task would be ranked number 1, the second most desirable task number 2, and so on.

PLEASE USE EACH RANKING NUMBER ONLY ONCE.

	Rank
Positive Life Events Recall Task	_____
Student Tuition Increases Opinion Task	_____
Positive Leisure Experiences Recall Task	_____
Daily Life Events Recall Task	_____

In order to gain a clearer understanding of your preferences, in the space provided below, please explain your reasons for your ratings of the experimental tasks. Please explain why you ranked some tasks higher in desirability. Also, please explain what factors led you to rank some of the experimental tasks low in desirability. If the tasks were equally desirable, please explain why.

Appendix X

Study 4 Debriefing

OK, the study is actually over now and now I'd like to take this opportunity to tell you a little bit more about what we're studying. Hopefully, you can understand that if I told you everything ahead of time it could influence the results of the study. Now that the session is over, I can explain everything to you. Please feel free to interrupt if you have any questions or concerns.

I'm working with Dr. Enzle and a number of other colleagues in the psychology department here at the U of A. Our interests are in what factors affect attitude and opinion change. In the study you just completed, I was looking at how the essay-writing task would affect your ratings of the tasks that you could potentially perform. We were investigating the phenomena known as cognitive dissonance and attempting to understand the psychological processes involved in this type of attitude change.

Right now I need to clarify a few things. First, we are not advising the university on this issue regarding tuition increases. Also, your essay will not be forwarded to any committee and the content of the essay will remain confidential. Hopefully you can understand that in order to understand the processes involved in cognitive dissonance, we needed to use an issue that was highly involving to most university students.

This study had 2 independent variables and various dependent variables. Remember, independent variables are variables that are manipulated or changed. The level of choice involved in writing the essay was our first independent variable and it had two levels: high choice and low choice. I manipulated the level of choice by varying instructions at the beginning of the essay-writing task. Presumably people who wrote the essay out of their own free choice would have dissonance aroused. The type of task that you could perform was our second variable and it had four levels. We were attempting to see if people who were experiencing cognitive dissonance would have a preference for tasks that might put them in a more positive mood. Your task ratings and attitude towards tuition increases served as our dependent variables and it was assessed in the questionnaires that you completed at various times during the session. Remember, dependent variables are expected to be changed or influenced by the independent variable manipulations.

I hope that you can understand that if I told you I getting you to write an essay on a topic you were opposed to at the beginning of the session you might have responded differently than you did. There would have been the possibility that some participants might react to independent variable manipulations based on the way they believe the experimenters expected them to. This is called the demand awareness effect. This can be a real problem in research because our results could reflect nothing having to do with the psychological processes that we are interested in studying, but could simply reflect demand awareness. If this was the case, scientific progress would be slowed and inappropriate avenues of research could be followed.

In the past, many researchers have found people who write a counter-attitudinal essay out of their own free choice will subsequently alter their attitudes towards the target issue. This is what is known as cognitive dissonance. Dissonance theory proposes that when a person behaves in a manner contrary to a prior belief, a state of aversive tension or negative mood is aroused, as is the motivation to reduce this arousal. To reduce this unpleasant arousal, people will often alter their beliefs to align them with their behavior. Although many researchers have demonstrated this effect, the underlying mechanisms of dissonance-induced attitude change have yet to be resolved. In this experiment, we were hoping to demonstrate that people who are experiencing cognitive dissonance prefer to reduce the discomfort associated with the inconsistency in specific ways. We thought that people might prefer to complete a task that might induce a positive mood.

We need to ask you one important thing before you leave. Please do not let other people know what we were doing here today. This is because we'll be collecting more data this term and if people know what we are studying, it could really cause problems with our data. I hope you can see how having people know our hypothesis in advance would lead to problems in the interpretation of our data. Do you have any questions? If you have and concerns or think of anything later feel free to contact Sean Moore. His number is at the bottom of the sheet you'll be taking with you. In addition, I would like to inform you that if you are concerned about anything that occurred during the course of this experiment, you are free to withdraw your data at this time and will not be included in the final results of this study. Also, remember to take the debriefing sheet with you. The debriefing sheet contains information that you will be tested on for the research component of your introductory psych exam. Thank you again for participating today.